ORDER NO. KM79506005C1
F7

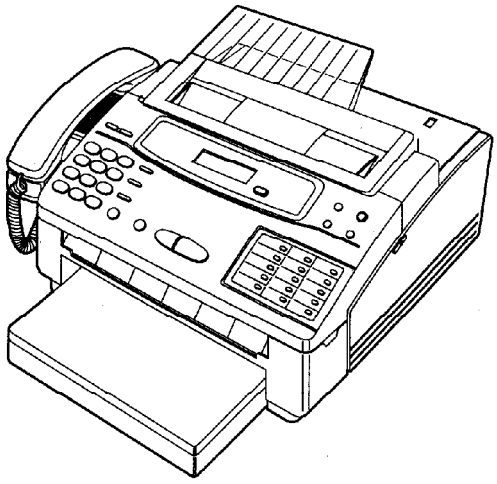
Service Manual

and Technical Guide

PLAIN PAPER FACSIMILE

KX-F1000
KX-F1020

(for U.S.A.)



SPECIFICATIONS\ТЕХНИЧЕСКИЕ ХАРАКТЕРИСТИКИ
OPTIONAL ACCESSORIES\ДОПОЛНИТЕЛЬНЫЕ ПРИНАДЛЕЖНОСТИ
INSTALLATION\УСТАНОВКА
MAINTENANCE ITEM\ТОЧКИ СЕРВИСНОГО ОБСЛУЖИВАНИЯ
TROUBLESHOOTING GUIDE\НЕИСПРАВНОСТИ И МЕТОДЫ ИХ УСТРАНЕНИЯ
DISASSEMBLY INSTRUCTIONS\МЕТОДИКА РАЗБОРКИ
ADJUSTMENTS\РЕГУЛИРОВКИ
BLOCK DIAGRAMS\БЛОК-СХЕМЫ
CONNECTION DIAGRAM\СХЕМА СОЕДИНЕНИЙ
SCHEMATIC DIAGRAMS\ПРИНЦИПИАЛЬНЫЕ СХЕМЫ
TERMINAL GUIDE OF IC'S, TRANSISTORS AND DIODES\ЦОКОЛЕВКА ИНТЕГРАЛЬНЫХ СХЕМ, ТРАНЗИСТОРОВ И ДИОДОВ
TOOLS\ИНСТРУМЕНТЫ
CABINET, MECHANICAL AND ELECTRICAL PARTS LOCATION\РАСПОЛОЖЕНИЕ ЧАСТЕЙ КОРПУСА, МЕХАНИЧЕСКИХ И ЭЛЕКТРИЧЕСКИХ ЧАСТЕЙ
ACCESSORIES AND PACKING MATERIALS\ПРИНАДЛЕЖНОСТИ И УПАКОВОЧНЫЕ МАТЕРИАЛЫ
REPLACEMENT PARTS LIST\СПИСОК ЗАПАСНЫХ ЧАСТЕЙ

Panasonic

SPECIFICATIONS

This specifications is for U.S.A. version only.
Refer to the simplified manual (cover) for other areas.

1. Applicable Lines:	Public Switched Telephone Network
2. Document Size:	Max.216 mm (8 1/2") in width Max.600 mm (23 5/8") in length
3. Effective Scanning Width:	208 mm(8 3/16")
4. Recording Paper Size:	Letter : 216×279 mm (8 1/2" ×11") Legal : 216×356 mm (8 1/2" ×14")
5. Effective Printing Width:	208 mm (8 3/16")
6. Transmission Time*:	Approx.15 sec/page (Original mode) Approx.30 sec/page (G3 Normal mode)
7. Fax Auto Redial:	Up to 5 times
8. Telephone Auto Redial:	Up to 14 times
9. Scanning Density:	Horizontal : 8 pels/mm (203 pels/inch) Vertical : 3.85 lines/mm (98 lines/inch) -Standard 7.7 lines/mm (196 lines/inch) -Fine/Halftone
10. Halftone Level:	64-level
11. Scanner Type:	CCD Image Sensor
12. Printer Type:	Thermal Transfer
13. Data Compression System:	Modified Huffman (MH), Modified READ (MR)
14. Modem Speed:	9600/7200/4800/2400 bps; Automatic Fallback
15. Operating Environment:	5-35°C (41-95 °F), 20-80 % RH
16. Dimensions(H×W×D):	237×420×389 mm (9 5/16" ×16 9/16" ×15 5/16")
17. Mass(Weight):	Approx. 9.0Kg (19.8 lb.)
18. Power Consumption:	Transmission: Approx. 17W /Reception: Approx. 40W Copy: Approx. 50W /Standby: Approx. 5W Maximum: Approx. 140W
19. Power Supply:	120 V AC, 60Hz

*Transmission Time: Transmission times apply to text data using the CCITT No.1 test chart, between the same machine models at maximum modem speed. The transmission time does not include call setup, ringing, handshaking and sign off. Transmission times may vary.

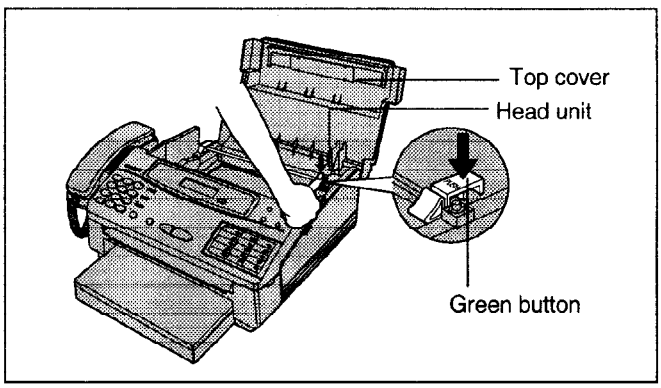
Design and specifications are subject to change without notice.

OPTIONAL ACCESSORIES

Parts No.	Description	Comment
KX-FA132	Film cartridge	1 cartridge & 1 film : 216 mm ×200m (8 1/2" ×656') roll
KX-FA133	Replacement film(1set)	216mm×200m(8 1/2" ×656')roll
KX-FA134	Replacement film(2sets)	216mm×200m(8 1/2" ×656')roll

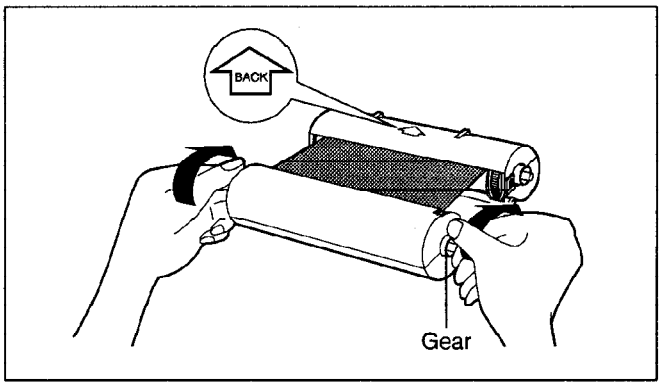
INSTALLATION

1. INSTALLING THE FILM CARTRIDGE

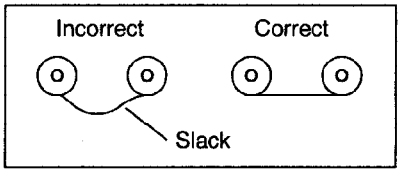


(1) Open the top cover.

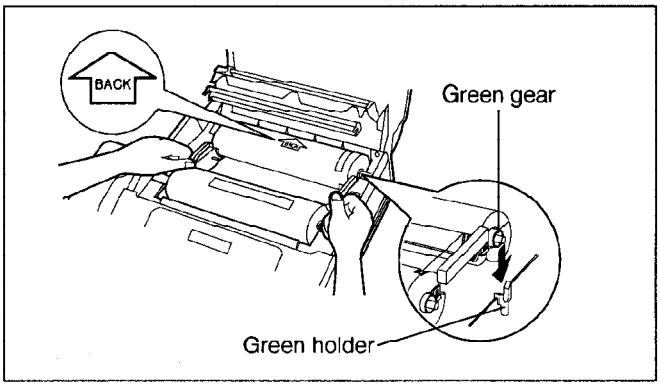
(2) Press the green button on the right marked "PUSH" and lift the head unit.



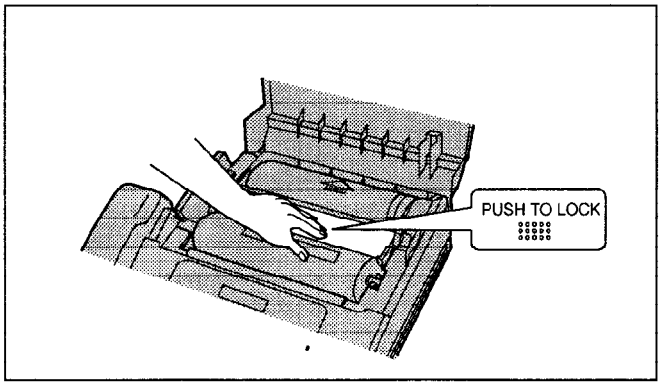
(3) Place the cartridge with the "BACK" indicator facing up. If the film is slack, tighten it by winding the gears.



—Because the length of the included film is 30 meters, it is recommended to purchase 200 meter length film for replacement soon.



(4) Referring to the illustration on the left, place the "BACK" side of the cartridge into the unit, by inserting the pins on the sides of the green gears into the green holders. Then lower the front of the cartridge into place.



(5) Press the head unit down firmly until it clicks into place.

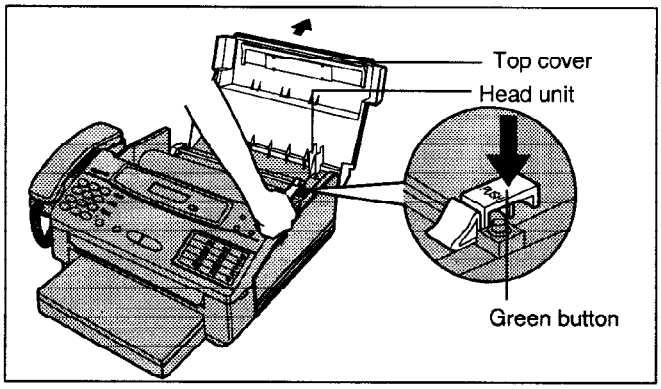
(6) Close the top cover securely by pushing down on both sides.

2. REPLACING THE FILM OR FILM CARTRIDGE

When the unit detects the end of the film, the following message will be displayed.

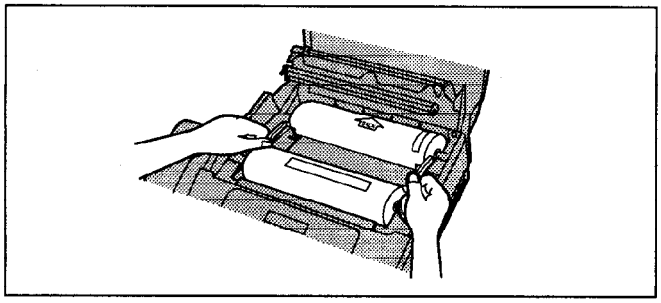
FILM EMPTY

Replace the film or film cartridge with new one.

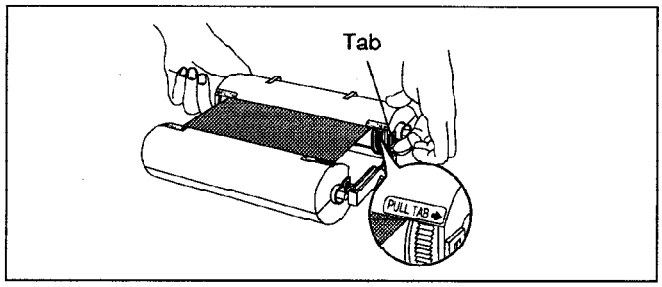


(1)Open the top cover.

(2)Press the green button on the right marked "PUSH" and lift up the head unit.

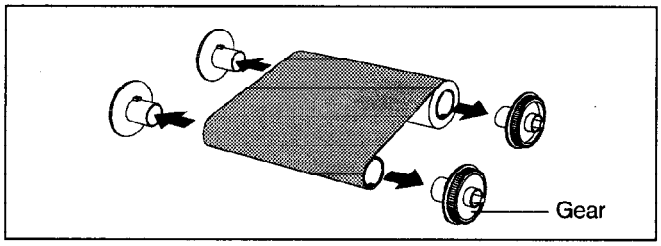


(3)Take out the cartridge.
—If you purchase a film cartridge (Part no. KX-FA132) for replacement, skip to step 11.

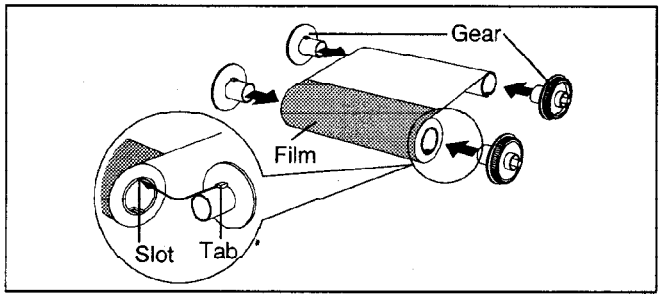


(4)Turn over the cartridge so that the "PULL TAB" mark is facing up.

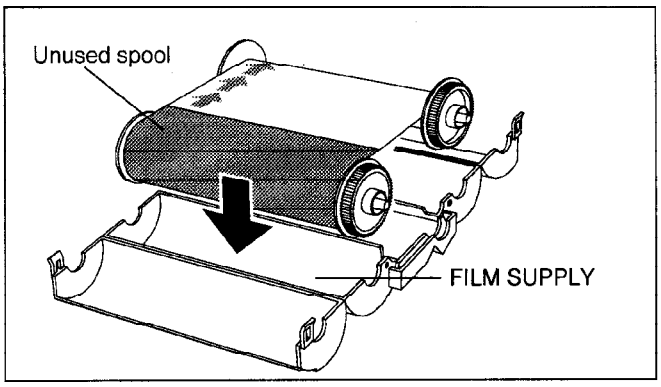
(5)Unlock the tabs of the cartridge, open the covers of the cartridge and take out the used film.



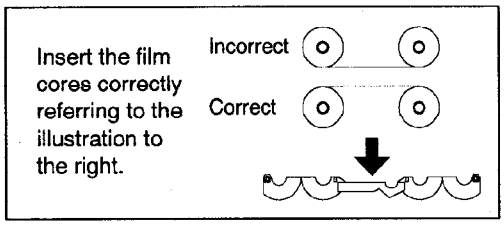
(6)Pull out the four gears from the used film cores.

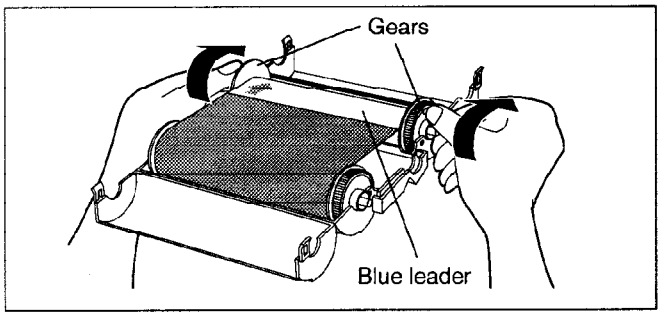


(7)Insert the four gears into the new film cores so that the tab of each gear fits into the slot of the film core.

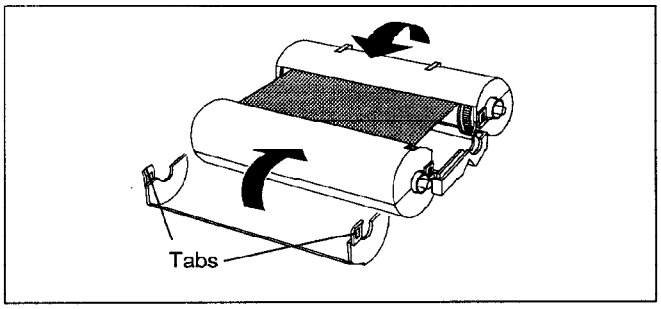


(8) Insert the film into the cartridge so that the arrow on the cartridge points in the same direction as that on the film.
—If you insert a film which was used halfway, insert the unused spool of the film on the "FILM SUPPLY" mark of the cartridge.

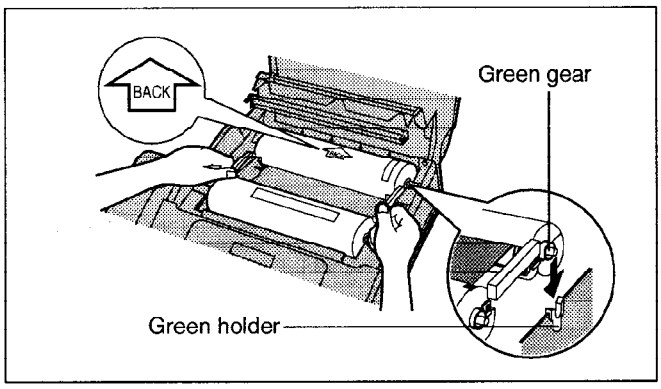




(9) Roll the blue leader of the film by winding the gears of the core until the leader is no longer visible.



(10) Close the covers of the cartridge by locking the four tabs.



(11) Turn over the cartridge and referring to the illustration on the left, place the "BACK" side of the cartridge into the unit, by inserting the pins on the sides of the green gears into the green holders. Then lower the front of the cartridge into place.

(12) Press the head unit down firmly until it clicks into place.

(13) Close the top cover securely by pushing down on both sides.
—If the blue leader of the film is not wound completely, the unit will automatically advance it and the following massage will be displayed.

LOADING FILM

—If the following message is displayed, the film is not inserted in the cartridge correctly.

CHECK FILM

Reinsert it correctly by referring to step 8 on this page.

MAINTENANCE ITEM

1. OUTLINE

MAINTENANCE AND REPAIRS ARE PERFORMED USING THE FOLLOWING STEPS.

1) Periodic maintenance

Inspect the equipment periodically and if necessary, clean any contaminated parts.

2) Check for breakdowns

Look for signs of trouble and consider how the problems arose.

If the equipment can still be used, perform a copying, self testing or communications testing.

3) Check equipment

Perform a copying, self testing and communications testing to determine if the problem originates from the transmitter, the receiver or the telephone line.

4) Determine causes

Determine the causes of equipment trouble by troubleshooting.

5) Equipment repairs

Repair or replace the defective parts and take appropriate measures at this stage to ensure that the problem does not recur.

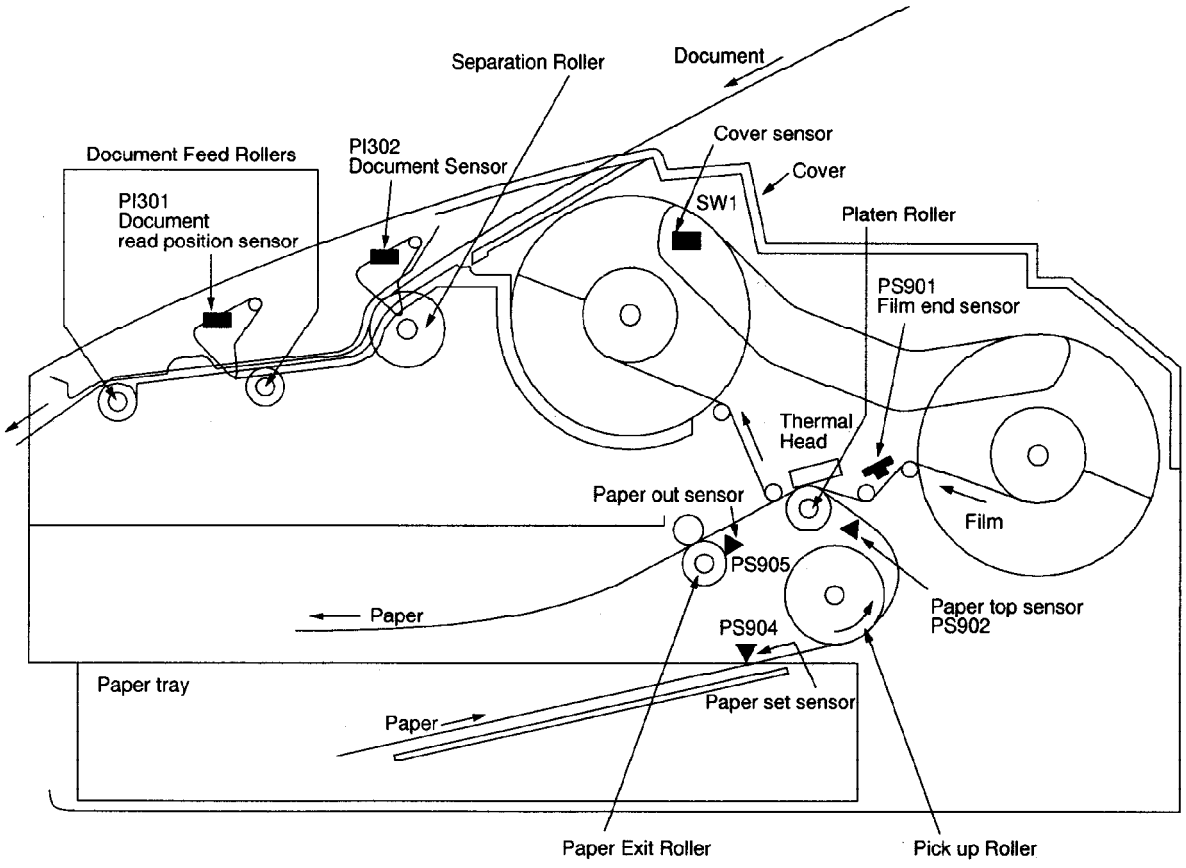
6) Confirm normal operation of the equipment

After completing the repairs, conduct copying, self testing and communications testing to confirm that the equipment operates normally.

7) Record keeping

Make a record of the measures taken to rectify the problem for future reference.

2. MAINTENANCE CHECK ITEMS



2-1. MAINTENANCE LIST

NO.	OPERATION	CHECK ITEM	REMARKS
1	Document Path	Remove any foreign matter such as paper.	———
2	Rollers	If the roller is dirty, clean it with a damp cloth then dry thoroughly.	See page 13.
3	Platen Roller	If the platen is dirty, clean it with a damp cloth then dry thoroughly. Remove the paper before cleaning.	———
4	Thermal Head	If the thermal head is dirty, clean the printing surface with a cloth moistened with denatured alcohol (alcohol without water), then dry thoroughly.	See pages 13,68.
5	LED Array	If the LED array is dirty, clean the glass with a dry soft cloth.	See page 13.
6	Sensors	Paper sensor (PS904), Document sensor (PI302), Read position sensor (PI301), Cover sensor (SW1), Paper top sensor (PS902), Paper out sensor (PS905), Film end sensor (PS901). Confirm operation of sensors.	See pages 47~49.
7	Mirrors and Lens	If the mirror and lens are dirty, clean it with a dry soft cloth.	———
8	Abnormal, wear and tear or looseness of parts	Exchange the part. Check the tightness of screws on all parts.	———

2-2. MAINTENANCE CYCLE

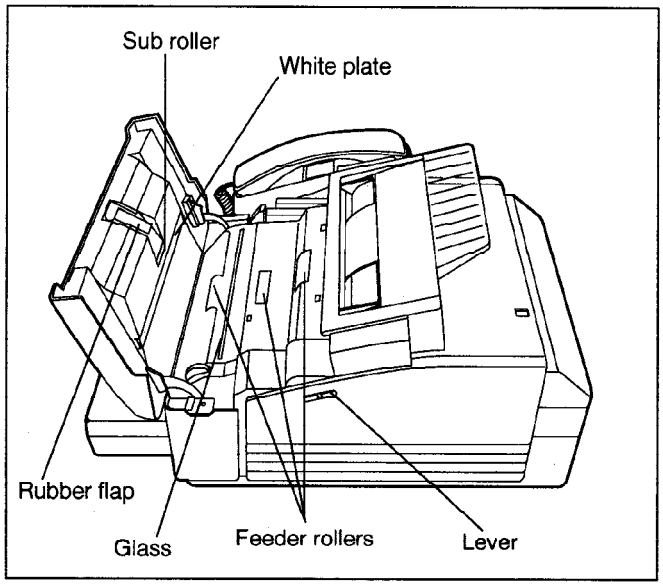
No.	Items	Cleaning		Replacement		Remarks
		Cycle	Procedure	Cycle	Procedure	
1	Separation Roller (Ref. No. 98)	3 months	See P. 13.	7 years (100,000 documents)	See P. 74.	
2	Separation Rubber (Ref. No. 48)	3 months	See P. 13.	7 years (100,000 documents)	See P. 65.	
3	Feed Roller (Ref. No. 97,178)	3 months	See P. 13.	7 years (100,000 documents)	See P. 71.	
4	Target Glass (Ref. No. 307)	3 months	See P. 13.	7 years (100,000 documents)	- - - -	
5	Thermal Head (Ref. No. 75)	3 months	See P. 13.	7 years (100,000 documents)	See P. 68.	
6	Platen Roller (Ref. No. 142)	3 months	See P. 71.	7 years (100,000 documents)	See P. 71.	

These values are only standard ones and may vary depending on usage conditions.

3. MAINTENANCE

3-1. CLEANING THE DOCUMENT FEEDER UNIT

When misfeeding occurs frequently or when dirty patterns or black bands appear on a copied or transmitted document, clean the feeder rollers, sub roller, rubber flap, white plate and glass.



(1) Disconnect the power cord and the telephone line cord.

(2) Slide the lever to open the front lid.

(3) Clean the feeder rollers, sub roller and rubber flap with a cloth moistened with isopropyl rubbing alcohol, then dry thoroughly.

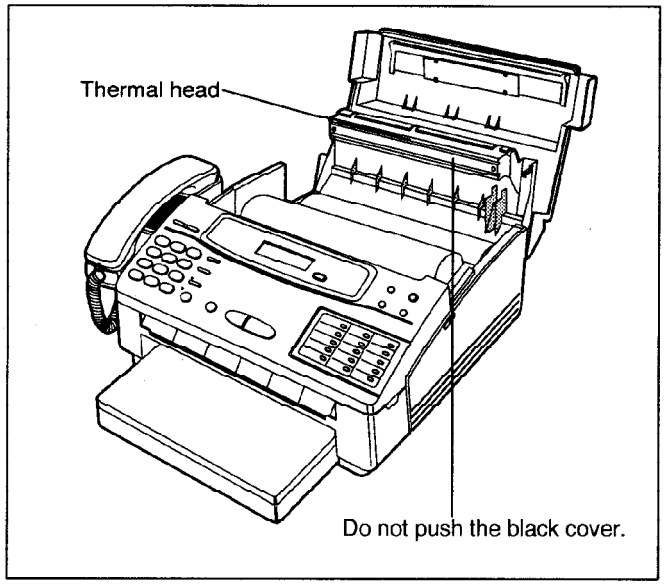
(4) Clean the white plate and the glass with a dry soft cloth.

(5) Close the lid surely by pushing down on both ends.

(6) Connect the power cord and telephone line cord.

3-2. CLEANING THE THERMAL HEAD

If dirty patterns or black bands appear on a copied or received document, clean the thermal head.



(1) Disconnect the power cord and the telephone line cord.

(2) Open the top cover.

(3) Press the green button on the right marked "PUSH" and lift up the head unit.

(4) Clean the thermal head with a cloth moistened with isopropyl rubbing alcohol, then dry thoroughly.

(5) Press the head unit down firmly until clicks into place.

(6) Close the top cover surely by pushing down on both ends.

(7) Connect the power cord and telephone line cord.

Caution:
•To prevent malfunction due to static electricity, do not use a dry cloth and do not touch the thermal head directly with your finger.

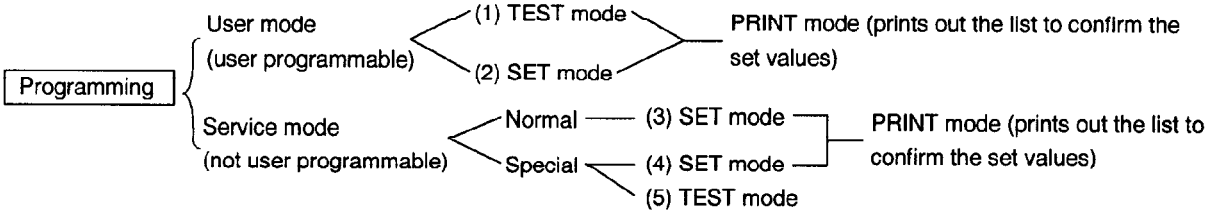
1. PROGRAMMING

The programming functions are used to program the various features and functions of the machine, and to test the machine. Programming can be done in both the on-hook and off-hook conditions. This facilitates communication between the user and the service while programming the machine.

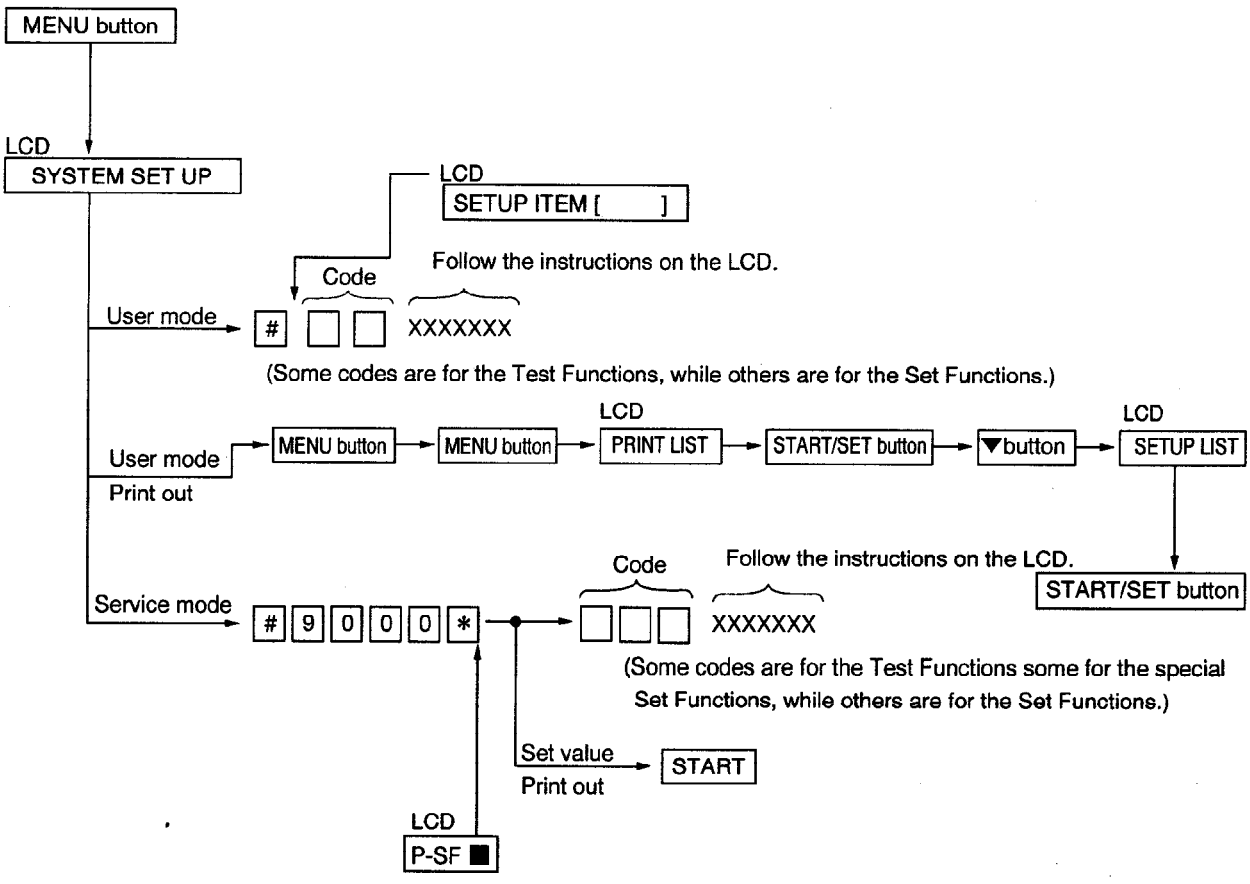
1-1. OPERATION

There are 2 basic categories of programming functions, the User Mode and the Service Mode. The Service Mode is further broken down into the normal and the special programs. The normal programs are those listed in the Operating instructions and available to the user. The special programs are those listed only here and not displayed to the user. In both User and Service Mode, there are Set Functions and Test Functions. The Set Functions are used to program various features and functions, and the Test Functions are used to test various functions . The Set Functions are accessed by entering their code, changing the appropriate value, then pressing the SET key. The test Functions are accessed by entering their code and pressing the key listed on the menu. While programming, to cancel any entry, press the STOP key.

1-2. OPERATION FLOW



Operating Procedure



1-3. USER MODE (The list below is an example of the SYSTEM SETUP LIST the unit prints out.)

SETUP LIST

[BASIC FEATURE LIST]

NO.	FEATURE	CURRENT SETTING	
#01	SET DATE & TIME	Jan. 01 1995 12:40AM	
#02	YOUR LOGO	Panasonic FAX SYSTEM	
#03	YOUR TELEPHONE NUMBER		
#04	PRINT TRANSMISSION REPORT	OFF	[ERROR,ON,OFF]
#06	TEL/FAX DELAYED RING	1	[1...4]
#07	FAX RING COUNT	1	[1...4]
#11	REMOTE TAM ACT.	OFF	[ON,OFF]
	ID =	11	

Code

Set Value

[ADVANCED FEATURE LIST]

NO.	FEATURE	CURRENT SETTING	
#21	LOGO POSITION	OUT	[OUT,IN,OFF]
#22	JOURNAL AUTO PRINT	ON	[ON,OFF]
#23	OVERSEAS MODE	OFF	[ON,OFF]
#24	JUNK MAIL PROHIBITOR	OFF	[ON,OFF]
	ID =	22	
#25	DELAYED TRANSMISSION	OFF	[ON,OFF]
	DESTINATION =		
	START TIME =	12:00AM	
#30	SILENT FAX RECOGNITION RING	3	[3...6]
#31	RING DETECTION	OFF	[OFF,A,B,C,D]
#34	EXTENSION COPY		
#35	COPY REDUCTION	OFF	[92,86,72,OFF]
#36	RX REDUCTION	92%	[92,86,72,OFF]
#38	SILENT DETECTION	ON	[ON,OFF]
#39	LCD CONTRAST	NORMAL	[NORMAL,LIGHT,DARKER]
#41	REMOTE FAX ACTIVATION CODE =	**	
#70	FAX PAGER	OFF	[ON,OFF]
	DESTINATION =		
#80	SET DEFAULT		

Code

Set Value

Note:

The above values are default

1-4. SERVICE FUNCTION TABLE

Code	Function	Set Value	Effective Range	Default	Remarks
501	Pause time set	×100 ms.	001~600	050	
502	Flash time set	×10 ms.	01~99	70	
503	Dial speed select	1..10 PPS 2..20 PPS	1, 2	1	
520	CED frequency select	1.. 2100 Hz 2.. 1100 Hz	1, 2	1	
521	International mode select	1..On 2..Off	1, 2	1	
522	Auto standby select	1..On 2..Off	1, 2	1	
523	Receive equalizer select	1..On 2..Off	1, 2	2	
550	Memory clear				"START" input
551	ROM check				"START" input
552	DTMF single tone transmit select	1..On 2..Off	1, 2	2	
553	Monitor on FAX communication select	1..Off 2..Phase B 3..All phases	1~3	1	
554	Modem test				"START" input
555	Scanner test				"START" input
556	Motor test	See page 20		00	"START" input
557	LED test				"START" input
558	LCD test				"START" input
559	Paper jam detection select	1..On 2..Off	1, 2	1	
561	KEY test				"START" input
563	CCD position adjustment value set	× 1 mm	00~30	–	
564	CCD auto position adjustment				"START" input
570	BREAK % select	1..61% 2..67%	1, 2	1	
571	ITS auto redial time set	× number of times	00~99	14	

Code	Function	Set Value	Effective Range	Default	Remarks
572	ITS auto redial line disconnection time set	× second	001～999	030	
573	Remote turn-on ring number set	× number of rings	01～99	15	
574	Dial Tone Detection set	1..On 2..Off	1, 2	2	
579	Auto disconnect cancel time	1..350msec 2..180msec 3..Off	1～3	1	Time of the detection of auto disconnect.
586	White line skip 1 select	1..On 2..Off	1, 2	1	
587	White line skip 2 select	1..On 2..Off	1, 2	1	
590	FAX auto redial time set	× number of times	00～99	05	
591	FAX auto redial lime disconnection time set	× second	001～999	045	
592	CNG transmit select	1..Off 2..All 3..Auto	1～3	2	
593	Time between CED and 300 bps	1..75 ms 2..500 ms 3..1 sec	1, 2, 3	1	
594	Overseas DIS detection select	1..detects at the 1st time 2..detects at the 2nd time	1, 2	1	
595	Receive error limit value set	× number of times	001～999	100	
596	Transmit level set	× dBm	−15～00	10	The values entered without "minus sing" will be regarded as negative.
597	Transmit speed 2400 BPS fixed mode select	1..On 2..Off	1, 2	2	
700	EXT.TAM OGM REC. time	× second	01～99	10	
701	No Voice detect time	× 100 msec	01～99	50	
702	EXT. TAM/FAX ring count		0～9	5	
717	Transmit speed select	1..9600BPS 2..7200BPS 3..4800BPS 4..2400BPS	1～4	1	The fall back starts from each speed.

Code	Function	Set Value	Effective Range	Default	Remarks
718	Receive speed select	1..9600BPS 2..7200BPS 3..4800BPS 4..2400BPS	1~4	1	The fall back starts from each speed.
719	Ringer Off in TEL/FAX mode	1..On 2..Off	1, 2	1	Selects whether the ring is on or off when the unit receives an incoming signal in the TEL/FAX mode when the ringer.
720	Manual tone detect	1..On 2..Off	1, 2	2	Sets the tone detection mode after dialing manually.
721	Pause tone detect	1..On 2..Off	1, 2	1	Sets the tone mode in pause.
722	Redial tone detect	1..On 2..Off	1, 2	1	Sets the tone detection mode after redialing.
745	Power ON film feed	1..On 2..Off	1, 2	1	
771	T1 Timer	1..35sec 2..60sec	1, 2	1	
815	Sensor & VOX check				"START" input
851	Printer feed test				"START" input
852	Print test pattern				"START" input
853	Top margin		1~9	—	
854	Left margin		1~8	—	
861	A4 size set	1..On 2..Off	1, 2	2	

DTMF single tone transmit select

When set to ON (=1), the 12 keys and transmission frequencies are as shown.

key	Frequency (Hz)	Key	Frequency (Hz)
"1"	697	"5"	1209
"2"	770	"6"	1336
"3"	852	"7"	1477
"4"	941		

When set to OFF (=2), the 12 keys and transmission frequencies are as shown.

High (Hz) / Low (Hz)	1209	1336	1477
697	"1"	"2"	"3"
770	"4"	"5"	"6"
852	"7"	"8"	"9"
941	*	"0"	"#"

1-5. SERVICE MODE SETTING VALUES (Example of a printed out list)

```
[ SERVICE DATA LIST ]
   Code                                  Set Value
501 PAUSE TIME                 =  050*100ms        [001...600]*100ms
502 FLASH TIME                 =  70*10ms          [01...99]*10ms
503 DIAL SPEED                 =  10pps            [1=10     2=20]pps
520 CED FREQ.                  =  2100Hz           [1=2100   2=1100]Hz
521 INTL. MODE                 =  ON               [1=ON     2=OFF]
522 AUTO STANDBY               =  ON               [1=ON     2=OFF]
523 RX EQL.                    =  OFF              [1=ON     2=OFF]
700 EXT.TAM OGM REC. TIME      =  10sec            [01...99]sec
701 NO VOICE DETECT TIME       =  50*100msec       [01...99]*100msec
702 EXT.TAM/FAX RING COUNT     =  5                [0...9]
853 TOP MARGIN                 =  1                [1...9]
854 LEFT MARGIN                =  5                [1...8]

[ SPECIAL SERVICE SETTINGS ]

  552  553  559  563  570  571  572  573  574  579  586  587  590
    2    1    1   09    1   14  030   15    2    1    1    1   05
Code  Set Value
  591  592  593  594  595  596  597  717  718  719  720  721  722
  045    2    1    1  100   10    2    1    1    1    2    1    1

  745  771  861
    1    1    2
```

Note:
The above values are default

2. TEST FUNCTIONS

Test mode	Type of Mode	• Code □□ • Operation after code input.	Function
PRINT TEST	User mode	[8] [5] START	Print a test pattern and check the thermal head for abnormalities (missing dots, etc.), and also check the operation of the reception motor.
MOTOR TEST	Service Mode	Operation: 1)Idle mode: Press the MENU,#,9,0,0,0, ✳ ,5,5,6 buttons 2)LCD [P-SF□□] 3)Input the 2 digits (Input code) 00..Stop, 10..Forward RX motor, 01..Forward TX motor, 11..Forward RX,TX motor, 20..Backward RX motor, 02..Backward TX motor, 22..Backward RX, TX motor 4)Press the start button (Stop: press the stop button)	Rotate the transmission and reception motors to check the operation of the motors.
MODEM TEST	Service Mode	[5] [5] [4] START	Send four kinds of FAX signals to check the sending function of the modem. 1) OFF 2) 9600bps 3) 7200bps 4) 4800bps 5) 2400bps 6) 300bps 7) 2100Hz 8) 1100Hz
ROM CHECK	Service Mode	[5] [5] [1] START	Indicate the version and check sum of the ROM.
SCAN CHECK	Service Mode	[5] [5] [5] START	Turn on the LEDs of the image sensor and operate the read system.
LCD CHECK	Service Mode	[5] [5] [8] START	Check the LCD indication. Illuminate all dots to check if they are normal.

DTMF SINGLE TEST	Service Mode	[5][5][2] 1..On 2..Off	Output the DTMF by single tone.
LED TEST	Service Mode	[5][5][7] START	All LEDs flashes on and off, or is illuminated.
KEY CHECK	Service Mode	[5][6][1] START {any key}	Check the operation button. Indicate the button code at LCD while the button is pressed.
FACTORY SET	Service Mode	[5][5][0] START	Clear the memory in which the user can store data.
CCD AUTO POSITION ADJUSTMENT	Service Mode	[5][6][4] START	
SENSOR CHECK & VOX CHECK	Service Mode	[8][1][5] START	CHECK SENSOR OPERATION [Do Sn Co Po Pa Pt Ri] : LCD DISPLAY Do: Document Set Sensor : Paper inserted Sn:Read Position Sensor : at the read Position Co: Cover Open Sensor : Cover Open Po: Paper Cut Sensor : Sensor On Pa: Recording Paper Sensor : Set Recording Paper Pt: Paper Top Sensor : Sensor On Ri: Ribbon Sensor : Sensor On MONITOR The Vox Signal When there is sound from LINE or EXT-TEL, Mute, LED lights ON.
PRINTER FEED TEST	Service Mode	[8][5][1] START	
PRINT TEST PATTERN	Service Mode	[8][5][2] START	

2-1. BUTTON CODE TABLE

(KX-F1020)

Code	Button Name	Code	Button Name	Code	Button Name	Code	Button Name
02	RESOLUTION	22	HELP	35	5	3D	REDIAL/PAUSE
04	START/SET	24	DIRECTORY	36	6	3E	FLASH
06	COPY	25	∧ VOLUME	37	7	64	STATION 1 ($^{1}/_{14}$)
07	PAPER SAVE	26	∨ VOLUME	38	8	65	STATION 2 ($^{2}/_{15}$)
08	SP-PHONE	31	1	39	9	66	STATION 3 ($^{3}/_{16}$)
0A	MUTE	32	2	3A	0	67	STATION 4 ($^{4}/_{17}$)
0C	RECEIVE MODE	33	3	3B	*	68	STATION 5 ($^{5}/_{18}$)
20	MENU	34	4	3C	#	69	STATION 6 ($^{6}/_{19}$)
						6A	STATION 7 ($^{7}/_{20}$)
						6B	STATION 8 ($^{8}/_{21}$)
						6C	STATION 9 ($^{9}/_{22}$)
						6D	STATION 10 (LOWER)
						6E	STATION 11 ($^{10}/_{23}$)
						6F	STATION 12 ($^{11}/_{24}$)
						70	STATION 13 ($^{12}/_{25}$)
						71	STATION 14 ($^{13}/_{26}$)

3. COMMUNICATION ERROR FUNCTIONS

3-1. OPERATION

1. Press the MENU button 3 times.
2. press the START/SET button and REDIAL/PAUSE button 4 times.
3. Press the START/SET button.
4. Print out.

3-2. ERROR CORD TABLE

CODE	RESULT	MODE	SYMPTOM	Counter-measure
	PRESSED THE STOP KEY	TX & RX	Communication was interrupted with the STOP button	
	DOCUMENT JAMMED	TX	Document paper is jammed	
	NO DOCUMENT	TX	No document paper	
	PRINTER OVERHEATED	RX	Thermal head is overheated	
	PAPER OUT	RX	Out of thermal paper	
	THE COVER WAS OPENED	TX & RX	Cover is open	
	PAPER JAMMED	RX	Recording paper is jammed	
40	NO RESPONSE	TX	Transmission is finished when T1 TIMER is expired	1
41	COMMUNICATION ERROR	TX	DCN is received after DCS transmission	2
42	COMMUNICATION ERROR	TX	FTT is received after transmission of 2400BSP training signal	3
43	COMMUNICATION ERROR	TX	No response after post message is transmitted three times	4
44	COMMUNICATION ERROR	TX	RTN and PIN are received	5
46	COMMUNICATION ERROR	RX	No response after FTT is transmitted	6
48	COMMUNICATION ERROR	RX	No post message	7
49	COMMUNICATION ERROR	RX	RTN is transmitted	8
50	COMMUNICATION ERROR	RX	PIN is transmitted (to PRI-Q)	8
51	COMMUNICATION ERROR	RX	PIN is transmitted	8
52	NO RESPONSE	RX	Reception is finished when T1 TIME is expired	9
53	COMMUNICATION ERROR	TX	DCN is received after transmission of NSC and DTC	10
54	COMMUNICATION ERROR	RX	DCN is received after DIS transmission	11
57	COMMUNICATION ERROR	TX	300BPS error	12
58	COMMUNICATION ERROR	RX	DCN is received after FTT transmission	13
59	COMMUNICATION ERROR	TX	DCN responds to post message	14
64	COMMUNICATION ERROR	TX	Polling is not possible	15
68	COMMUNICATION ERROR	RX	No response at the other party after MCF or CFR is transmitted	13
70	COMMUNICATION ERROR	RX	DCN is received after CFR transmission	13
72	COMMUNICATION ERROR	RX	Carrier is cut when image signal is received	16
	FILM EMPTY	RX	Film is Empty	
FF	COMMUNICATION ERROR	TX & RX	Modem error	12

TX=TRANSMISSION RX=RECEPTION

※Most fax communication problems can be resolved by the following steps.

1) Change the transmit level.
2) Change the TX speed/RX speed.

If not resolved, see the next page.

4. REMOTE PROGRAMMING

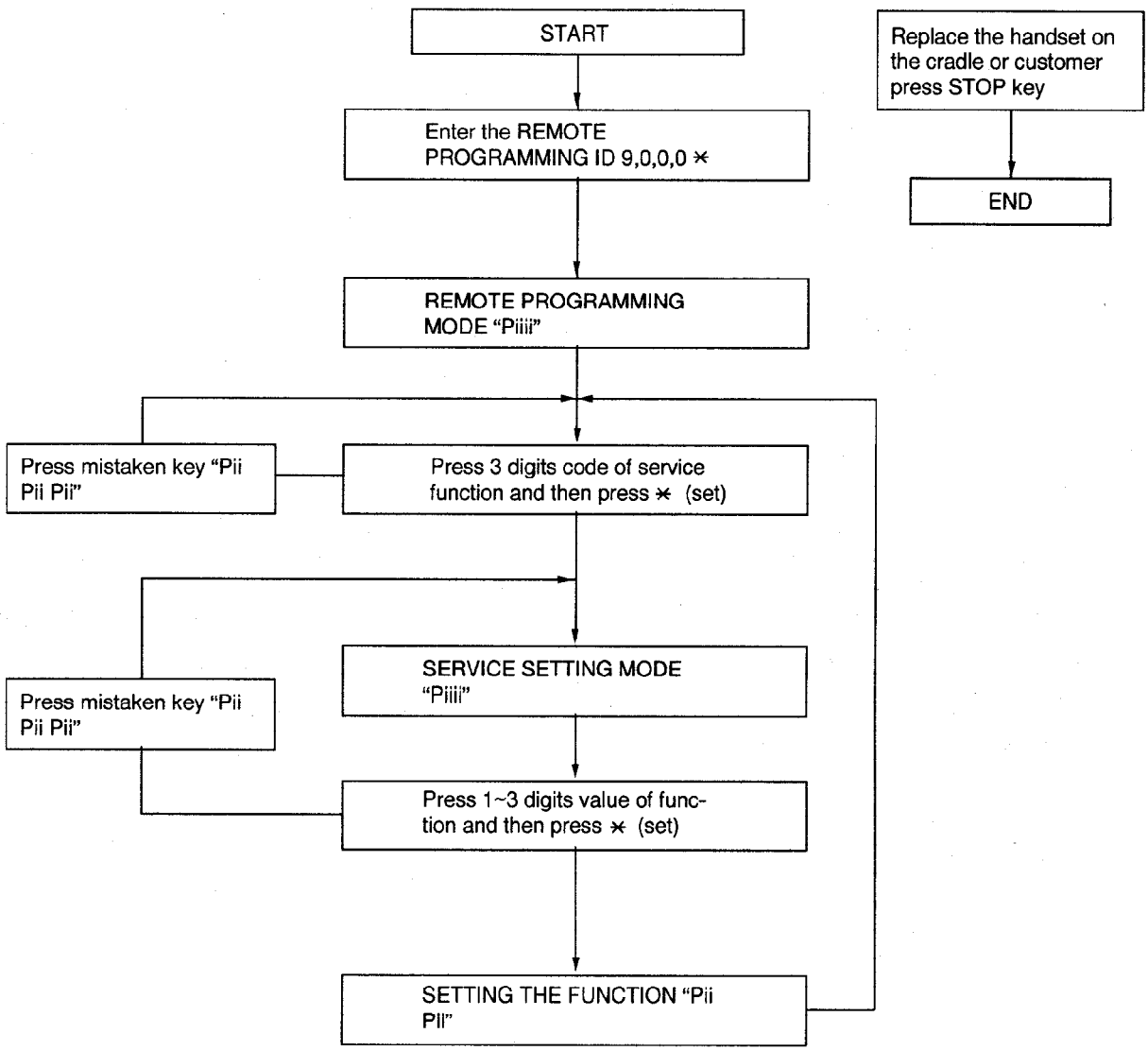
While a user is talking on the phone, a technician can set the functions of customer's unit from service center.

1. A call comes in service center.
2. A technician gets a claim from a customer.
3. He says to the customer "please press MENU button and wait for a moment".
4. The technician dial '9,0,0,0, ✳' from his telephone.
   The customer's unit is set REMOTE PROGRAMMING MODE and generates remote beep sound.
   He hears "Piiii' (one long beep).
5. He presses 3 digits code of service function written in service manual by dial keypad.
   And presses ✳ (set).
   The customer's unit receives the service code.
   He hears "Piiii" (one long beep).
6. He presses 1~3 digits value of function written in service manual by dial keypad.
   And presses ✳ (set).
   The customer's unit receives the service value.
   He hears "Pii Pii" (double short beeps).
7. Then he can repeat from step 5.
8. When he wishes to end the REMOTE PROGRAMMING MODE, he replaces the handset on the cradle or the customer presses the STOP button.

NOTE:

1) To enter the REMOTE PROGRAMMING MODE is necessary in Step 3. Because the unit can not easily enter the REMOTE PROGRAMMING by DTMF signal from the other party.
2) If he presses wrong buttons when his operation is in step 5 or 6. he hears "Pii Pii Pii" (triple short beeps). Then he can repeat from the same step.
3) When customer's unit finishes transmitting a list (No. 911,994,999), he can have a voice conversation.
   And he can continue the REMOTE PROGRAMMING MODE.
4) When customer's unit start transmitting a list (No. 991,994,999), he does not hear "Pii Pii" (double short beeps).
   The unit generate CNG sound.

4-1. SUMMARY OF REMOTE PROGRAMMING MODE



4-2. PROGRAM MODE TABLE

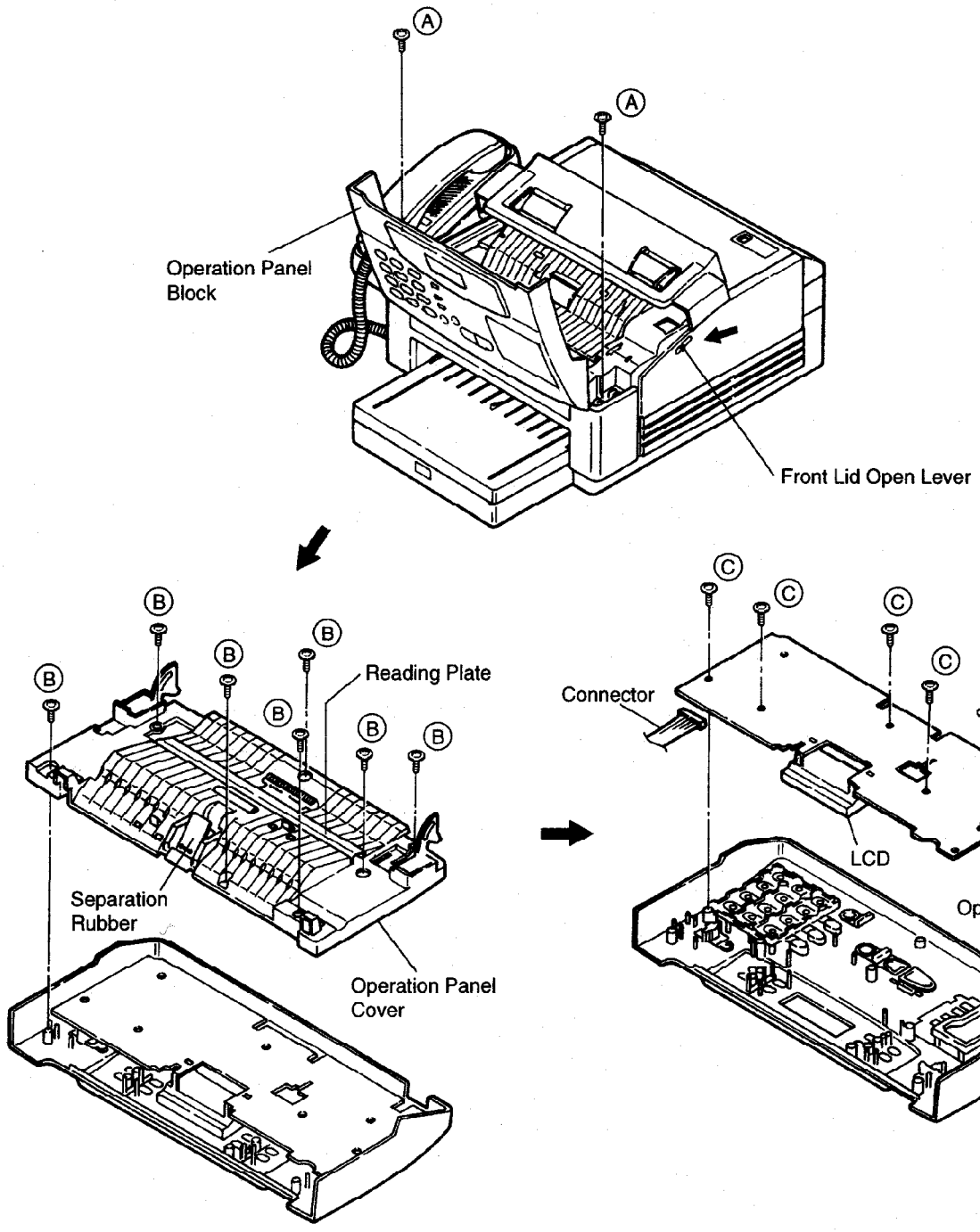
Code	Function	Set Value	Default	Remote setting
#01	Set date and time	mm/dd/yy hh:mm	(Jan/01/95)	NG
#02	Your logo	up to 30 digits	PANASO	NG
#03	Your telephone number	up to 20 digits	(NONE)	NG
#04	Print transmission report	ERROR/ON/OFF	OFF	OK
#06	TEL/FAX delayed ring	1 to 4 rings	1	OK
#07	FAX ring count	1 to 4 rings	1	OK
#11	Remote TAM activation	ON/OFF	OFF/ID=11	NG
#21	Logo position	OUT/IN/OFF	OUT	OK
#22	Journal auto print	ON/OFF	ON	OK
#23	Overseas mode	ON/OFF	OFF	NG
#24	Junk mail prohibitor	ON/OFF	OFF/ID=22	NG
#25	Delayed transmission	ON/OFF	OFF	NG
#30	Silent FAX recognition ring	3 to 6 rings	3	OK
#31	Ring detection	OFF/A/B/C/D	OFF	OK
#34	Extension copy	-----	-----	NG
#35	Copy reduction	92%/72%/OFF	OFF	NG
#36	RX reduction	92%/86%/72%/OFF	92%	OK
#38	Silent defection	ON/OFF	ON	OK
#39	LCD contrast	NORMAL/LIGHT/DARKER	NORMAL	OK
#41	Remote FAX activation code	-----	**	NG
#70	FAX pager	ON/OFF	OFF	NG
#80	Set default	YES/NO	NO	NG
501	Pause time set	001~600X100msec	050	OK
502	Flash time set	01~99X10msec	70	OK
503	Dial speed set	1:10/2:20pps	10	OK
520	CED frequency select	1:2100/2:1100Hz	2100	OK
521	International mode select	1:ON/2:OFF	ON	OK
522	Auto standby select	1:ON/2:OFF	ON	OK
523	Receive equalizer select	1:ON/2:OFF	OFF	OK
550	Memory clear	"START" push	-----	NG
551	ROM check	"START" push	-----	NG
552	DTMF signal tone transmit select	1:ON / 2:OFF	OFF	NG
553	Monitor on FAX communication select	1:OFF/2:P-B/3:ALL	OFF	OK
554	Modem test	"START" push	-----	NG
555	Scanner test	"START" push	-----	NG
556	Motor test	"START" push	-----	NG
557	LED test	"START" push	-----	NG
558	LCD test	"START" push	-----	NG
559	Paper jam detection select	1:ON/2:OFF	ON	OK
561	Key test	"START" push	-----	NG
563	CCD position adjustment value set	00~30	-----	OK
564	CCD auto position adjustment	———	-----	OK
570	Break % select	1:61/2:67%	61%	NG
571	ITS auto redial time set	00~99	14	OK
572	ITS auto redial line disconnection time set	001~999	030	OK
573	Remote turn-on ring number set	01~99	15	OK
574	Dial tone detection set	1:ON/2:OFF	OFF	OK
579	Auto disconnect cancel time	1:350msec/2:180msec/3:OFF	350msec	OK
586	White line skip 2 select	1:ON/2:OFF	ON	OK
587	White line skip 2 select	1:ON/2:OFF	ON	OK
590	FAX auto redial time set	00~99	05	OK
591	FAX auto redial line disconnection time set	001~999	045	OK
592	CNG transmit select	1:OFF/2:ALL/3:AUTO	All	OK
593	Time between CED and 300 bps	1:75/2:500/3:1s	75ms	OK
594	Overseas DIS detection select	1:1st/2:2nd	1st	OK
595	Receive error limit value set	001~999	100	OK
596	Transmit level set	-15~00dBm	10	OK
597	Transmit speed 2400bps fixed mode select	1:ON/2:OFF	OFF	OK

Code	Function	Set Value	Default	Remote setting
700	EXT. TAM OGM REC. time	01~99	10sec	OK
701	No voice defect time	01~99	50 X100msec	OK
702	EXT. TAM/FAX ring count	0~9	5	OK
717	Transmit speed select	1:9600/2:7200/3:4800/4:2400bps	9600bps	OK
718	Receive speed select	1:9600/2:7200/3:4800/4:2400bps	9600bps	OK
719	Ringer off in TEL/FAX mode	1:ON/2:OFF	ON	OK
720	Manual tone detect	1:ON/2:OFF	OFF	OK
721	Pause tone detect	1:ON/2:OFF	ON	OK
722	Redial tone detect	1:ON/2:OFF	ON	OK
745	Power ON film feed	1:ON/2:OFF	ON	OK
771	T1 timer	1:35sec/2:60sec	35sec	OK
851	Printer feed test	"START" push	-----	NG
852	Print test pattern print	"START" push	-----	NG
853	Top margin	1~9	-----	OK
854	Left margin	1~8	-----	OK
861	A4 size set	1:ON/2:OFF	OFF	OK
991	Set up list	1:Start	-----	OK
994	Journal list	1:Start	-----	OK
999	Service list	1:Start	-----	OK

DISASSEMBLY INSTRUCTIONS

Ref. No. 1	HOW TO REMOVE THE OPERATION BOARD AND LCD
Procedure 1	

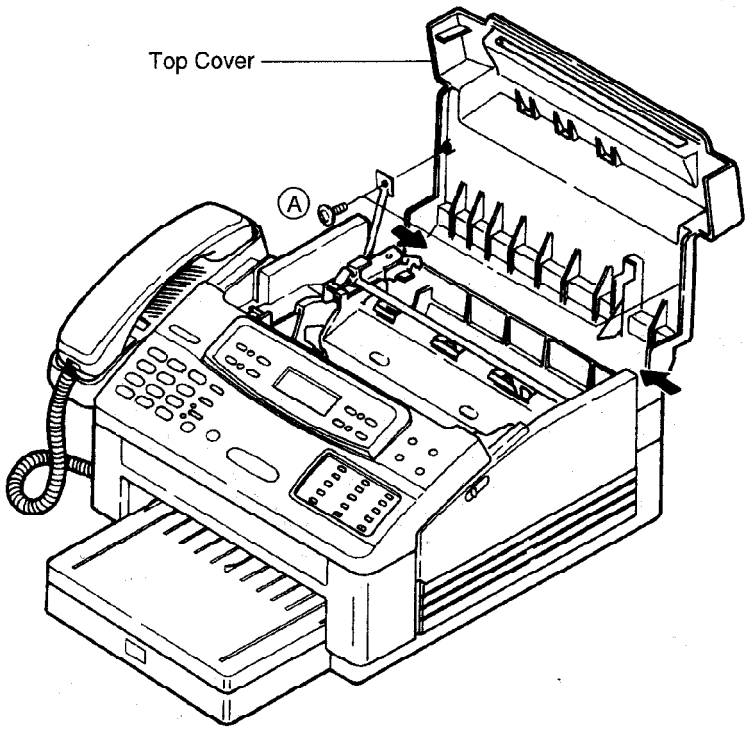
1) Push the front lid open lever in the direction of the arrow to open the operation panel.
2) Remove the 2 screws (A) and remove the operation panel block.
3) Remove the 7 screws (B) and remove the operation panel cover.
4) Remove the 5 screws (C).
5) Pull out the 1 connector and remove the operation board.
6) Remove the LCD.



HOW TO CLEAN:
Clean the reading plate with cloth soaking in alcohol.

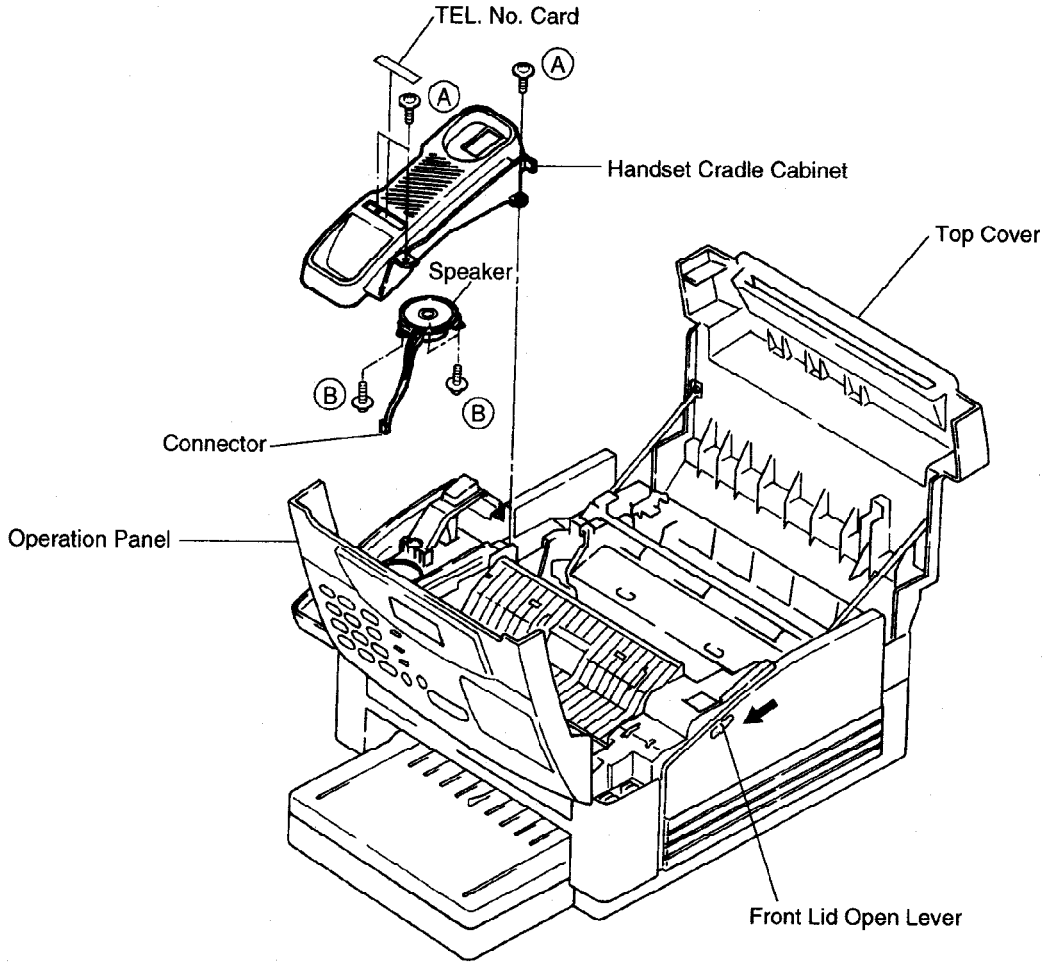
Ref. No. 2	**HOW TO REMOVE THE TOP COVER**
Procedure 2	

1) Remove the 2 screws (A).
2) Push the installing section in the direction of the arrow to remove the top cover.



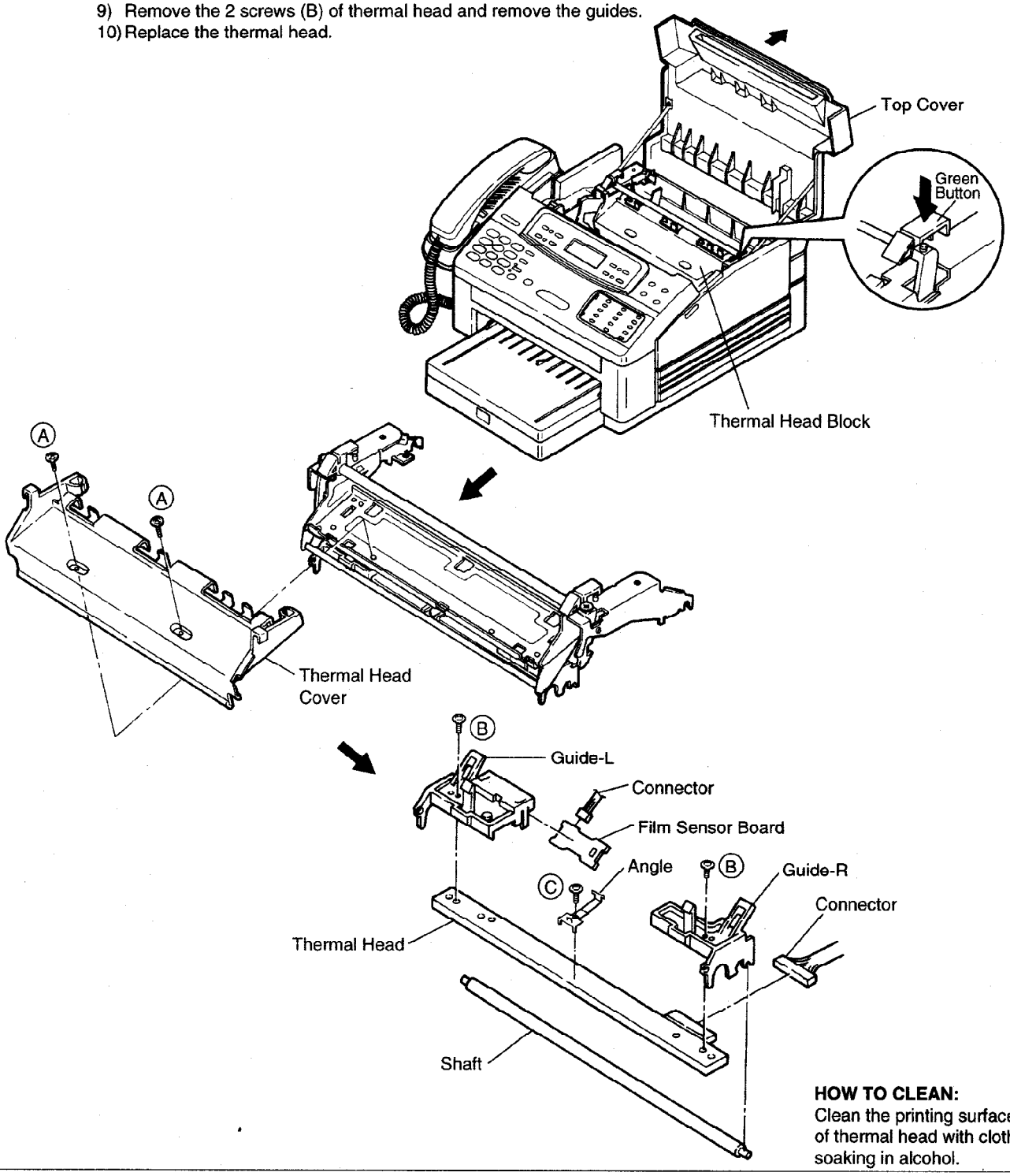
Ref. No. 3	**HOW TO REMOVE THE HANDSET CRADLE CABINET AND SPEAKER**
Procedure 3	

1) Push the front lid open lever to open the operation panel.
2) Open the top cover.
3) Remove the TEL. No. Card.
4) Remove the 3 screws (A).
5) Remove the handset cradle cabinet.
6) Remove the 3 screws (B).
7) Pull out the speaker connector.
8) Remove the speaker.



Ref. No. 4	HOW TO REMOVE THE THERMAL HEAD AND FILM SENSOR BOARD
Procedure 4	

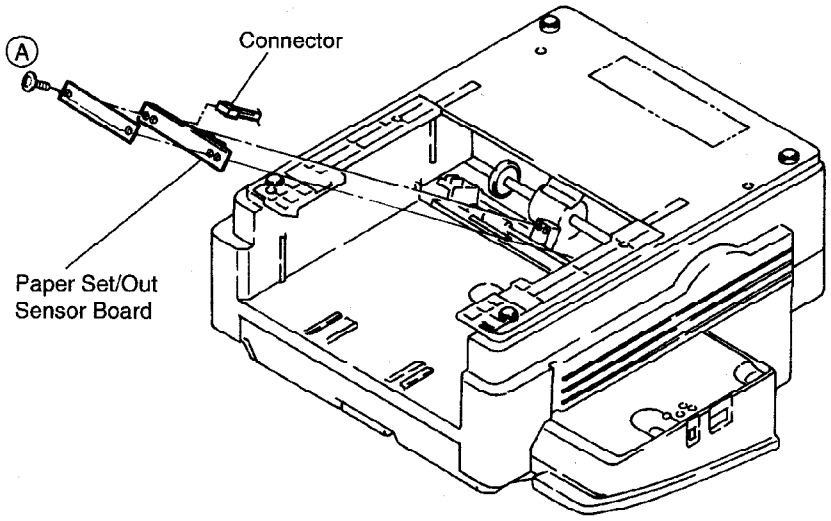
1) Open the top cover.
2) Push the green button on the right marked "PUSH" and lift up the thermal head block.
3) Remove the 2 screws (A) and remove the thermal head cover.
4) Pull out the 2 connectors.
5) Remove the thermal head block.
6) Remove the shaft.
7) Remove the film sensor board.
8) Remove the angle from the thermal head.
9) Remove the 2 screws (B) of thermal head and remove the guides.
10) Replace the thermal head.



HOW TO CLEAN:
Clean the printing surface of thermal head with cloth soaking in alcohol.

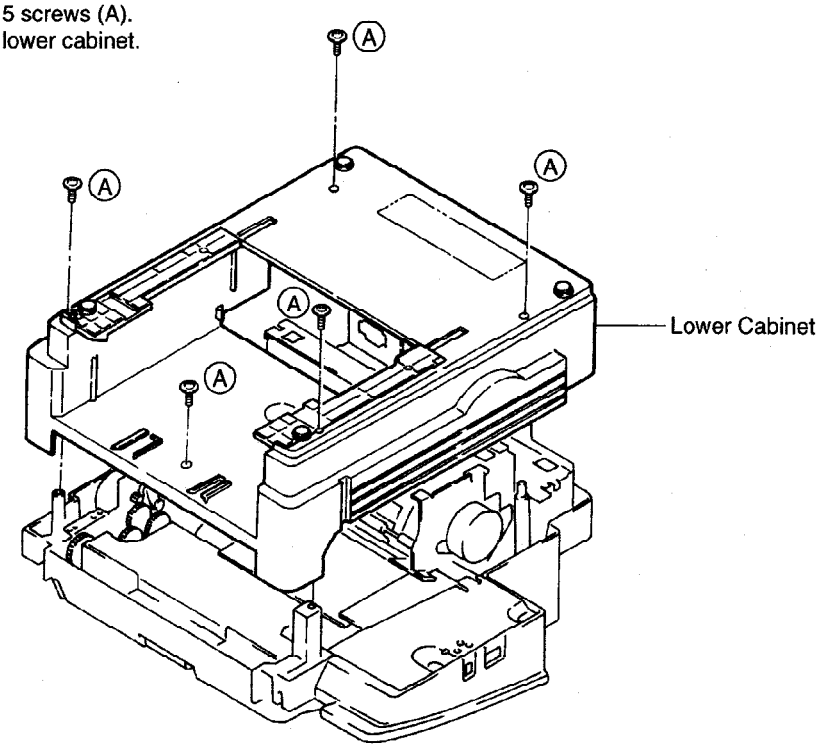
Ref. No. 5	**HOW TO REMOVE THE PAPER SET/OUT SENSOR BOARD**
Procedure 5	

1) Remove the 2 screws (A).
2) Pull out the connector.
3) Remove the paper set/out sensor board.



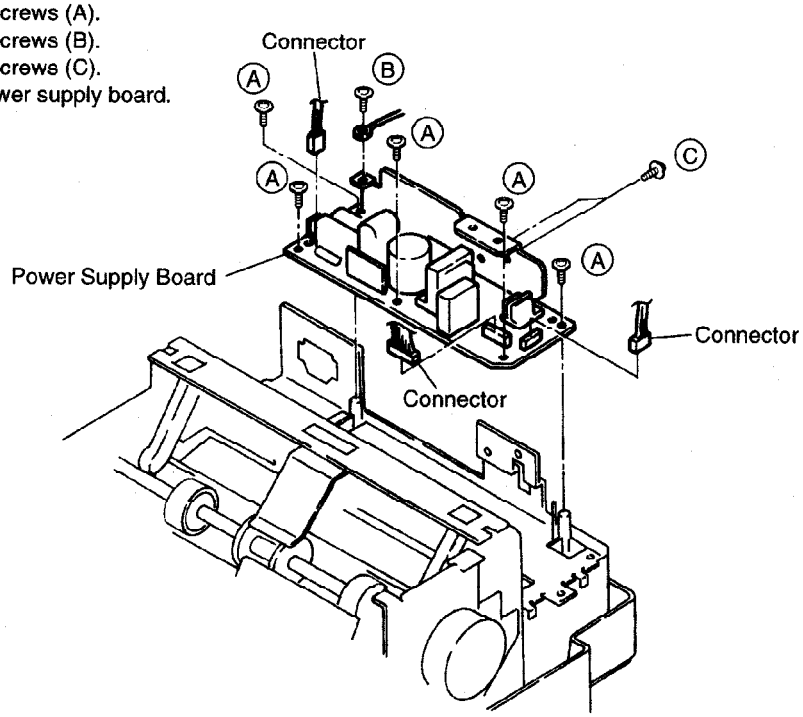
Ref. No. 6	**HOW TO REMOVE THE LOWER CABINET**
Procedure 6	

1) Remove the 5 screws (A).
2) Remove the lower cabinet.



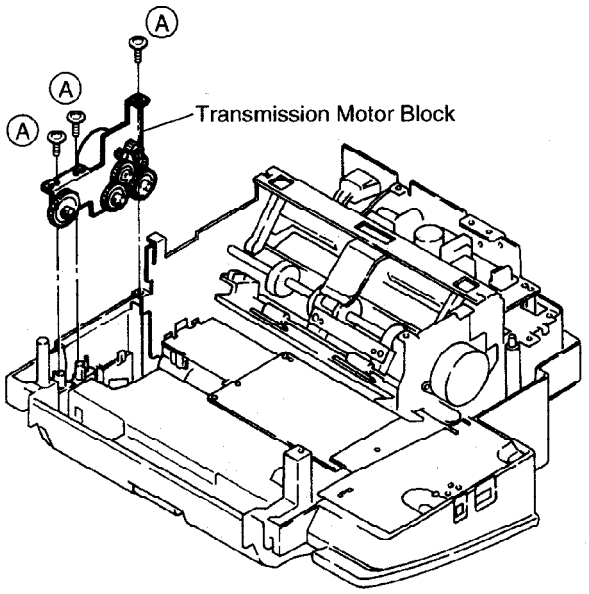
Ref. No. 7	**HOW TO REMOVE THE POWER SUPPLY BOARD**
Procedure 6→7	

1) Pull out the 3 connectors.
2) Remove the 5 screws (A).
3) Remove the 1 screws (B).
4) Remove the 2 screws (C).
5) Remove the power supply board.



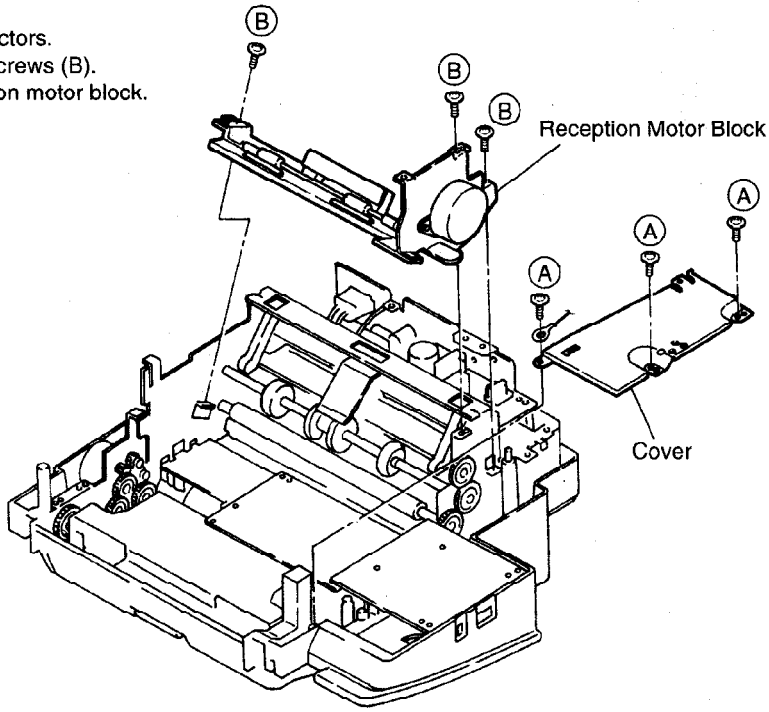
Ref. No. 8	**HOW TO REMOVE THE TRANSMISSION MOTOR BLOCK**
Procedure 6→8	

1) Remove the 3 screws (A).
2) Remove the transmission motor block.



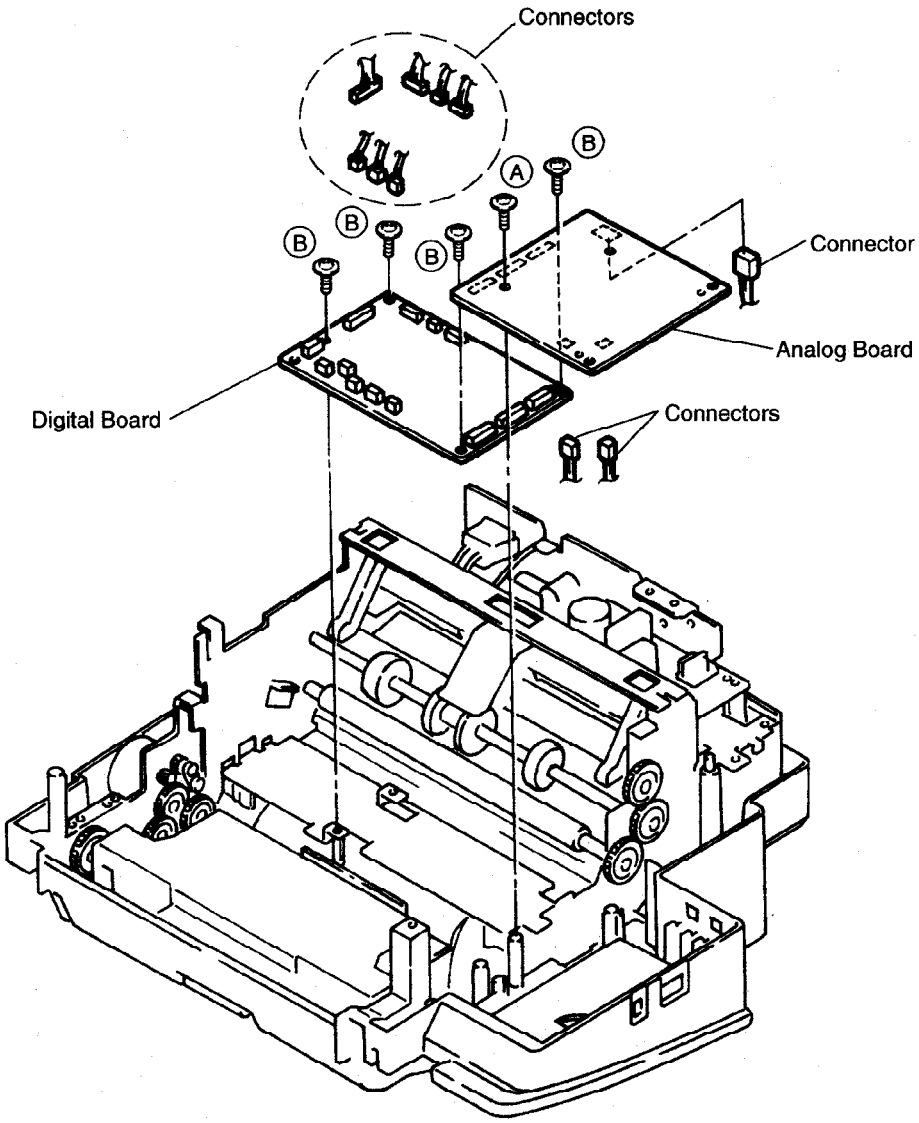
Ref. No. 9	**HOW TO REMOVE THE RECEPTION MOTOR BLOCK**
Procedure 6→9	

1) Remove the 3 screws (A).
2) Remove the cover.
3) Pull out the 3 connectors.
4) Remove the 3 red screws (B).
5) Remove the reception motor block.



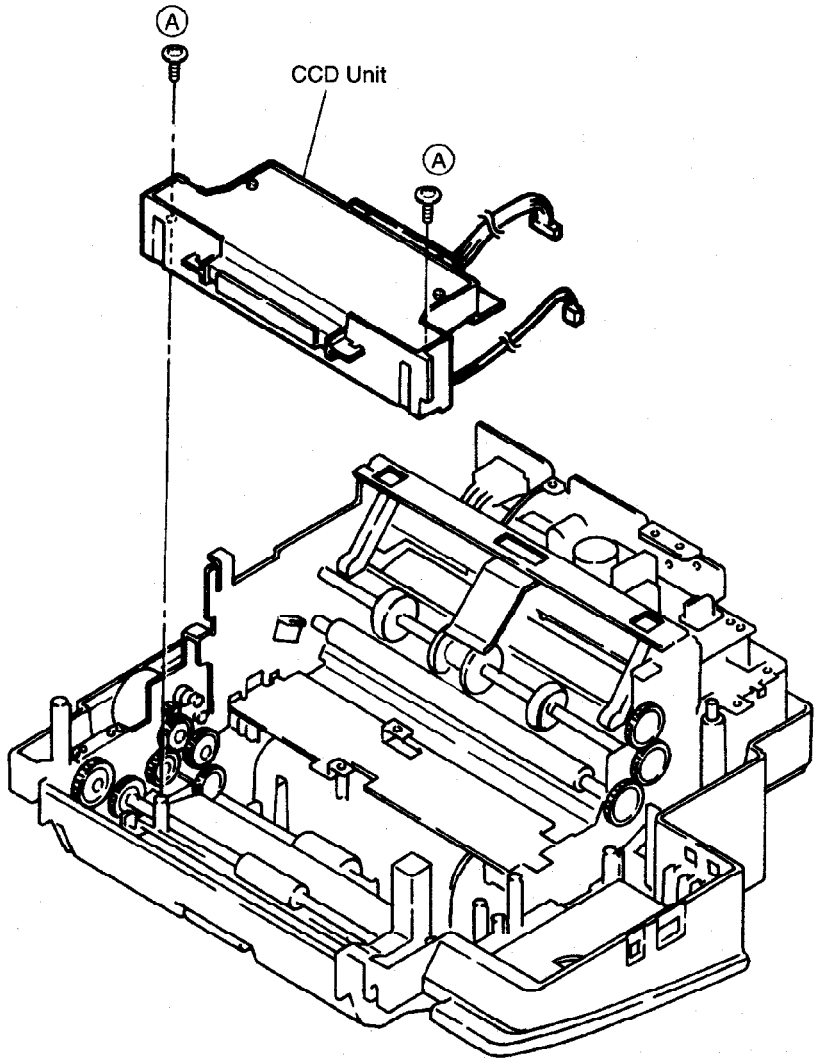
Ref. No. 10	HOW TO REMOVE THE ANALOG AND DIGITAL BOARDS
Procedure 6→9→10	

1) Remove the 1 screws (A).
2) Remove the analog board.
3) Remove the 3 connectors from analog board.
4) Remove the 7 connectors.
5) Remove the 4 screws (B).
6) Remove the digital board.



Ref. No. 11	**HOW TO REMOVE THE CCD UNIT.**
Procedure 6→9→10→11	

1) Remove the 2 screws (A).
2) Remove the CCD unit.



HOW TO CLEAN:
Clean the glass of CCD unit with cloth soaking in alcohol.

Ref. No. 12	**HOW TO REMOVE THE ROLLERS**
Procedure 6→9→10 →11→12	

1) Remove the 3 screws (A).
2) Remove the transmission motor block.
3) Remove the spacer with minus screwdriver (small size) as shown in following Fig. A.
4) Remove the roller.
5) Remove the gear and spacer from roller shaft and replace roller.

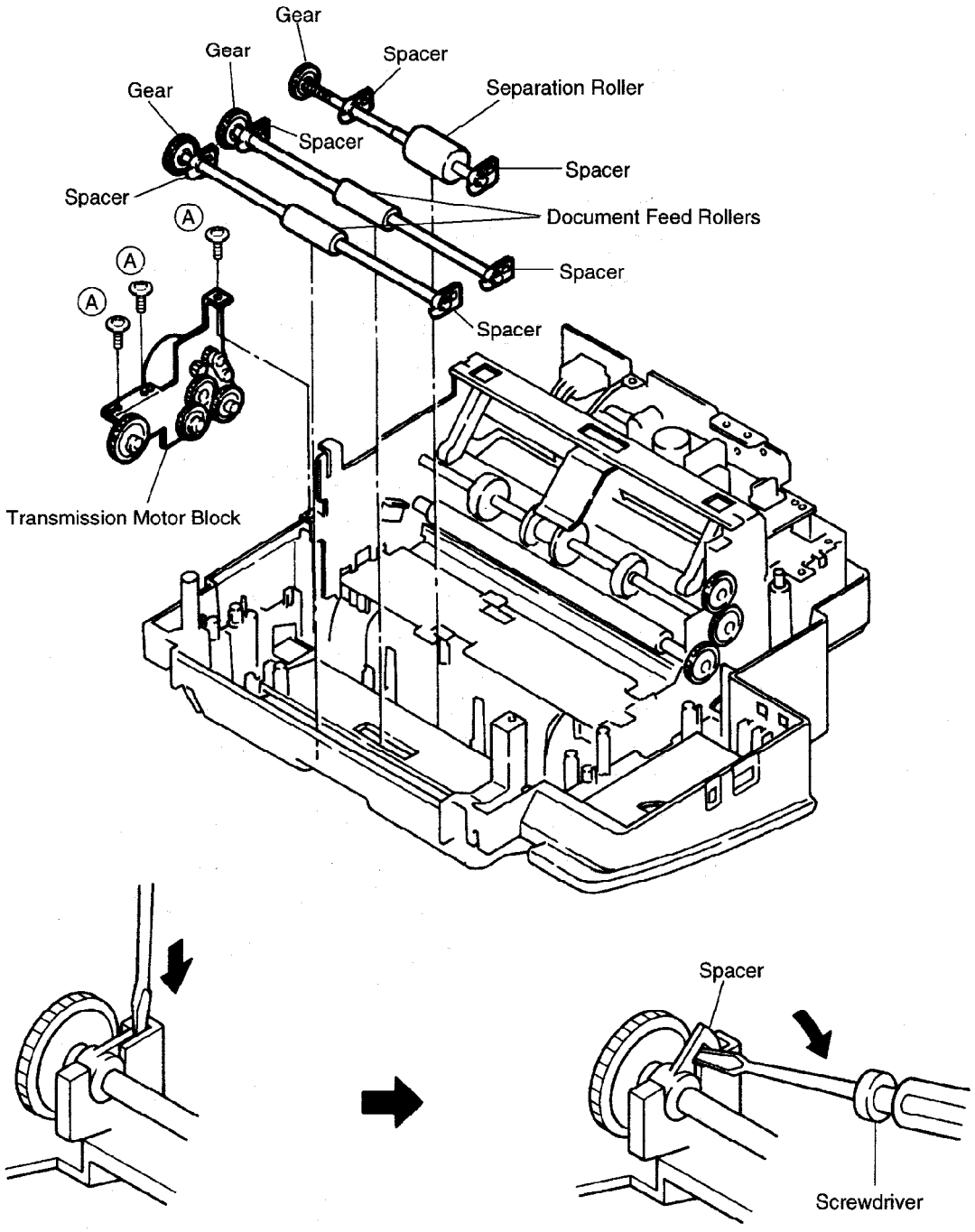
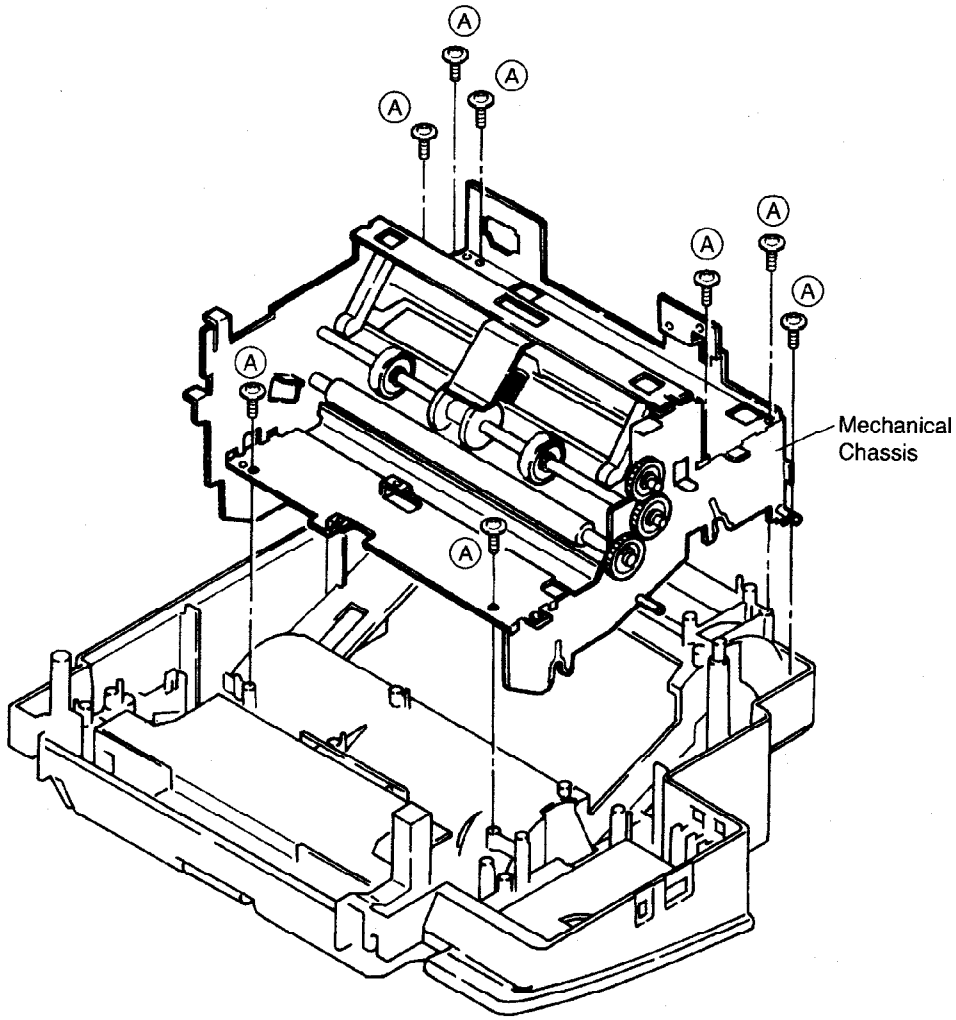


Fig. A

Ref. No. 13	**HOW TO REMOVE THE MECHANICAL CHASSIS.**
Procedure 6→9→10 →8→7→13	1) Remove the 8 screws (A). 2) Remove the mechanical chassis.



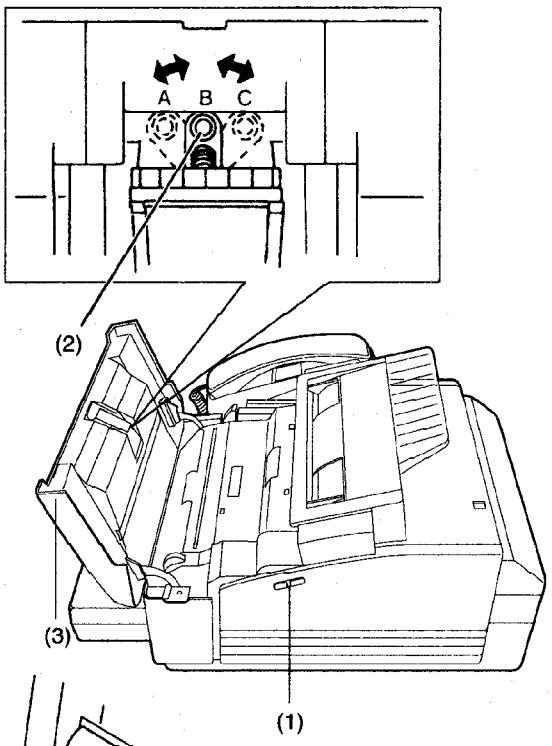
ADJUSTMENTS

1. TABLE OF TEST EQUIPMENTS AND TOOL

No.	Test Equipment and Jig Name	Jig No.
1	Oscilloscope	———
2	CCD Tool	PQZZF500M
3	Extension Cord	PQZZ2K12Z, PQZZ8K18Z
4	Spring Height Tool	PQZZ2F500M

2. ADJUSTING THE FEEDER PRESSURE

If misfeeding of document, such a multiple feeding or no feeding, occurs frequently, try to adjust the feeder pressure by following steps below.



(1) Slide the lever to open the front lid.
(2) Shift the position of the lever by using an instrument with a pointed end, like a clip or ball-point pen.
Position A: Case of no feeding
Position B: Standard position
Position C: Case of multiple feeding
(3) Close the lid surely by pressing down on both ends.

3. CONFIRMATION OF SEPARATION SPRING

1. Open the operation grille.
2. Check the highest level of the separation spring with the spring height tool (PQZZ2F500M). Please make sure that the separation spring does not touch the tool during this operation. (Both right and left) (See Fig. 1).
3. Check the lowest level of the separation spring with the opposite side of the spring height tool. Please make sure that the separation spring touches the tool during this operation. (Both right and left) (See Fig. 2).

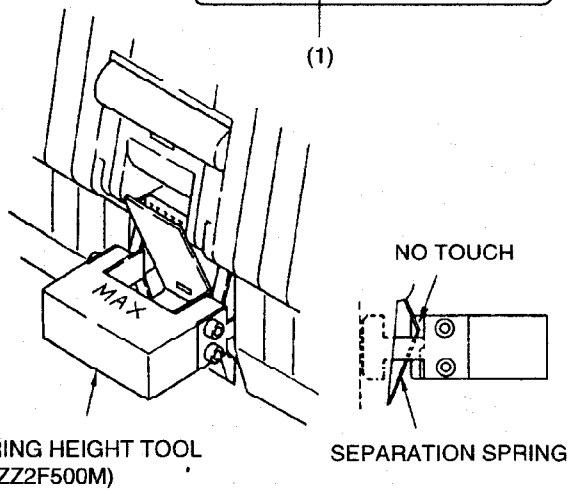


Fig. 1

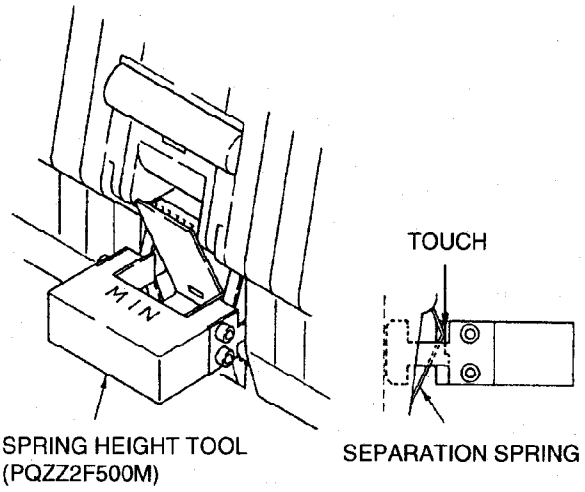


Fig. 2

4. CCD ADJUSTMENTS

Perform the following adjustment after replacing lens and CCD board.

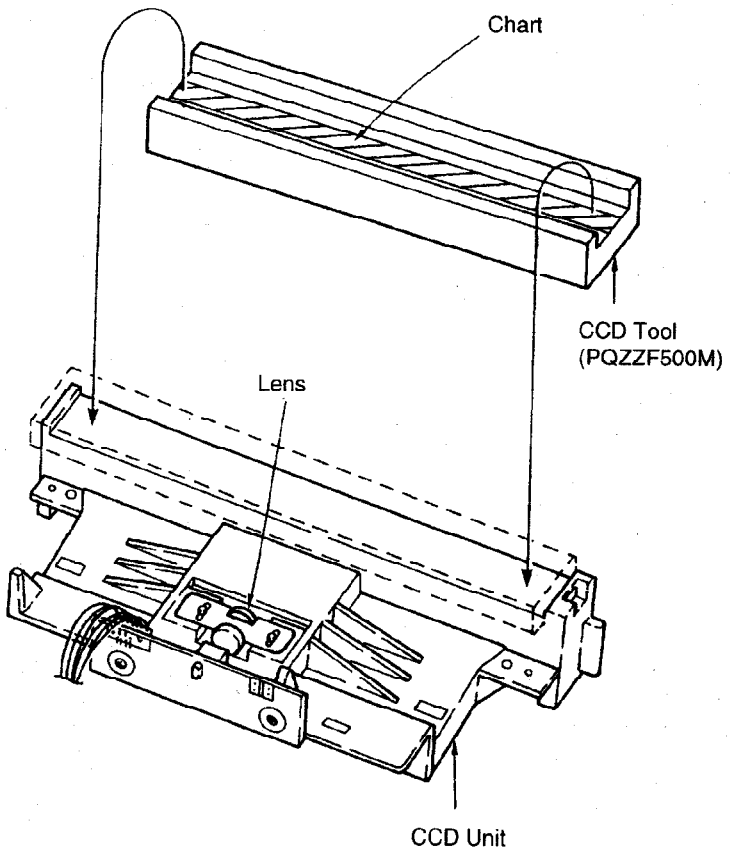
PREPARATION:

1) Remove the CCD unit from set. (Refer to page 73)
2) Make oscilloscope connections as shown in next page.
3) Attach the CCD TOOL on the CCD unit.
4) Connect between CCD unit and digital board with extension cord (Part No. PQZZ8K18Z). (Refer to next page).
5) Connect between LED array and digital board with extension cord (Part No. PQZZ2K12Z). (Refer to next page).
6) Connect AC cord.
7) Press the MENU button.
8) Press the #,9,0,0,0, and * buttons.
9) Press the 5,5 and 5 buttons.

Notes:

1) When replacing the lens, pay attention to the markings on the lens are white and yellow. The number of the CCD spacers to use differs depending on the marking as follows.
   *Refer to page 176 for the location of the CCD spacer.
2) Install the lens so that the marking (White or Yellow) on it is upper side.
3) Do not touch the glass face of the lens with the bare hands.
   Cleaning:
   If the lens is dirty, clean it with a dry soft cloth.

Marking on the lens	Number of CCD Spacer
White	0 (not used)
Yellow	1



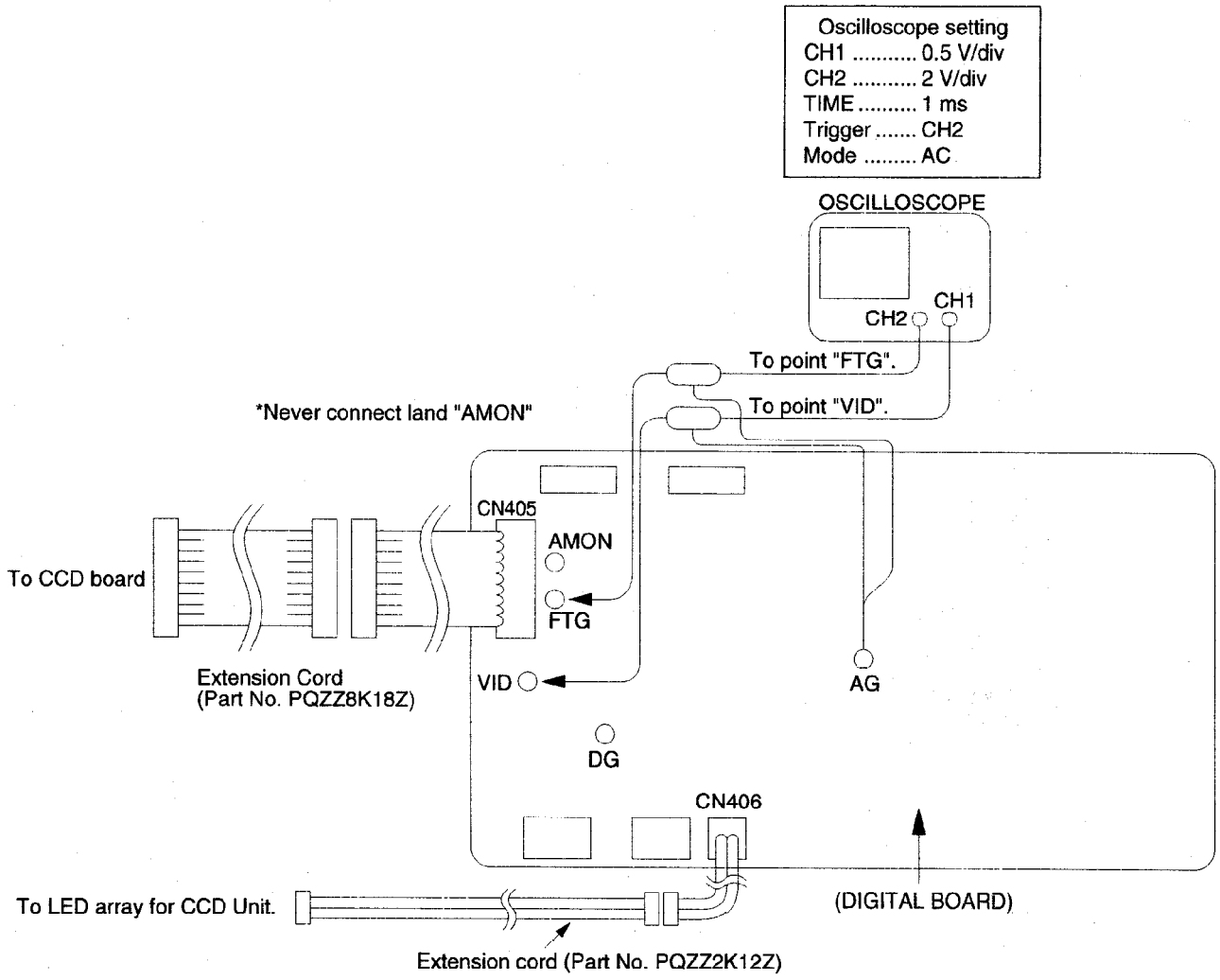
Note:

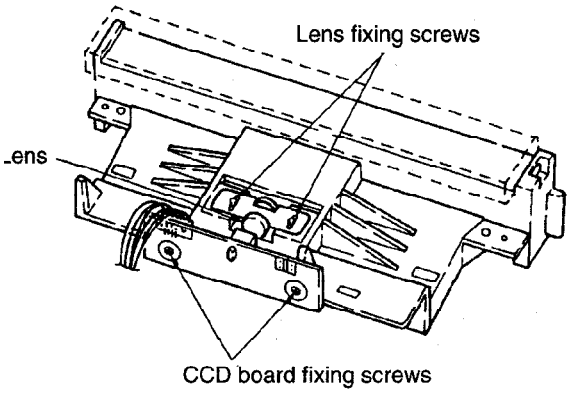
Please adjust with covering topside of the lens by hands in order not to let in outdoor daylight.

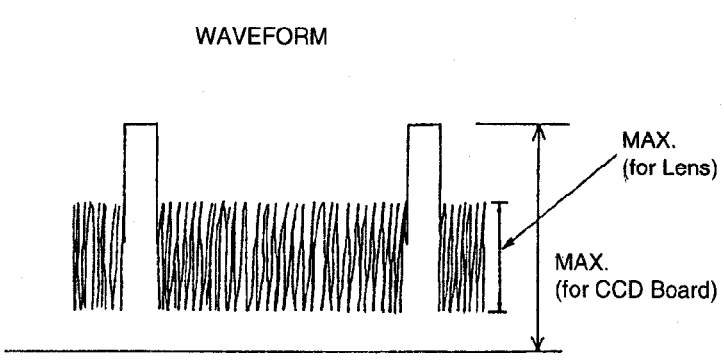
ADJUSTMENT:

LENS AND CCD READ POSITION ADJUSTMENT

1) Loosen the lens fixing screw and CCD board fixing screw.
2) Adjust the position of the lens and CCD board so that the waveform appears as shown in the figure below.
3) Fix the lens fixing screw and CCD board fixing screw.



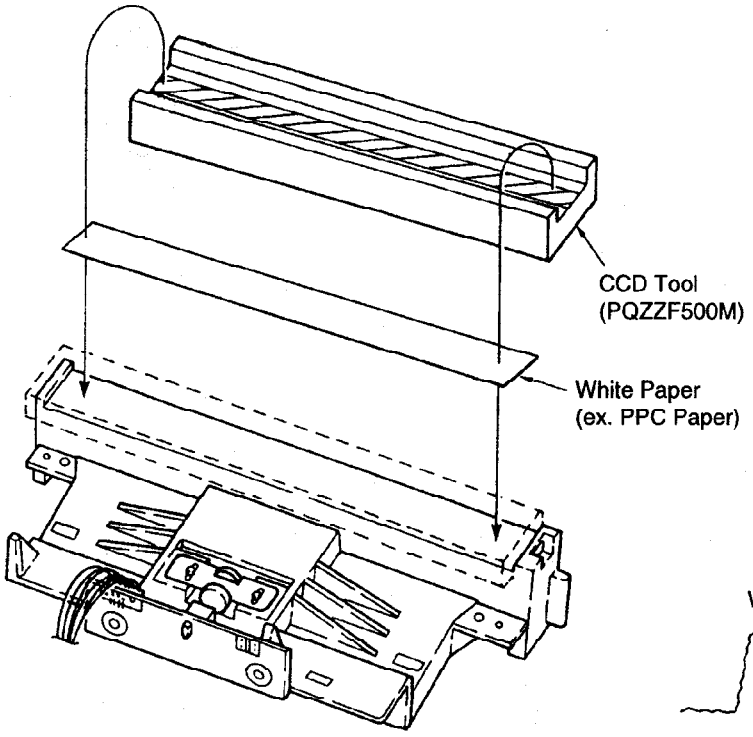


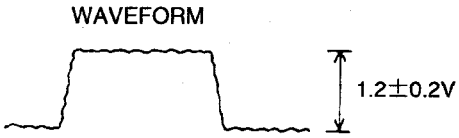


WHITE LEVEL ADJUSTMENT

1) Remove the CCD TOOL from CCD unit.
2) Attach the white paper on the CCD unit.
3) Attach the CCD TOOL on the CCD unit.
4) Adjust VR801 on the CCD board so that the waveform becomes 1.2± 0.2V.

Notes: 1. After the adjustment is finished, assemble the unit by reversing above procedure.
2. Please adjust with covering topside of the lens by hands in order not to let in outdoor daylight.
3. If you have no instrument to repair, trim off the chart on next page, then attach on the target glass. (This is a temporary treatment. You should use an instrument for this adjustment purpose, if you require an accurate repairment.)





5. DOCUMENT READ START POSITION ADJUSTMENT

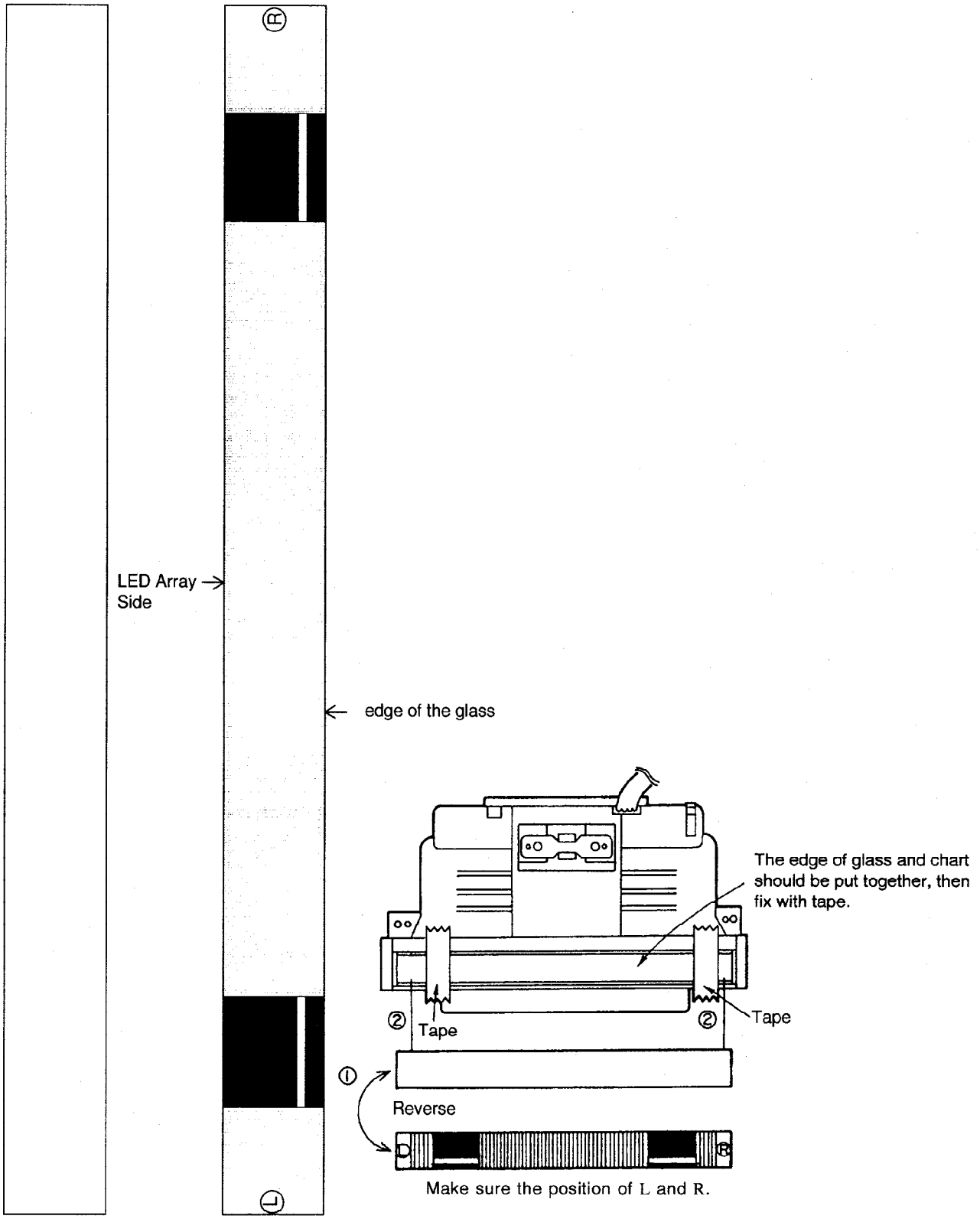
1) Connect AC cord.
2) Copy the document, and confirm the read start position of the document.
3) If get out of position, adjust the read position.
4) Press the MENU button.
5) Press the #, 9, 0, 0, 0, * and 5, 6, 3 buttons.
6) Press the □,□, SET and MENU buttons.

30
.
. To move the image to the right direction
.
16
15 ← Standard (Default)
14
.
. To move the image to the left direction
.
00

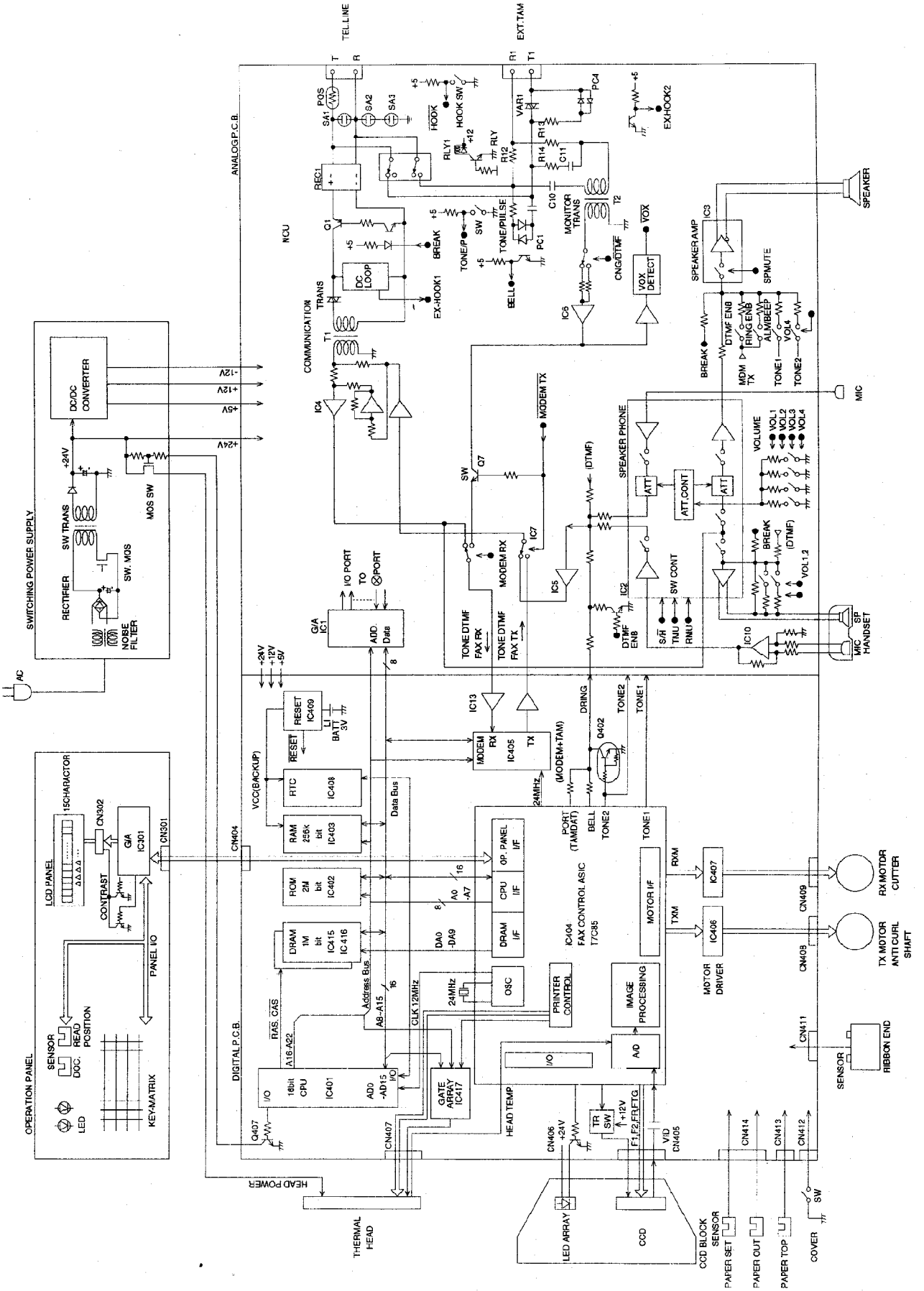
The starting position of reading shifts 1 mm as number of changes.

(for white level adjustment)

(for lens and CCD read position adjustment)

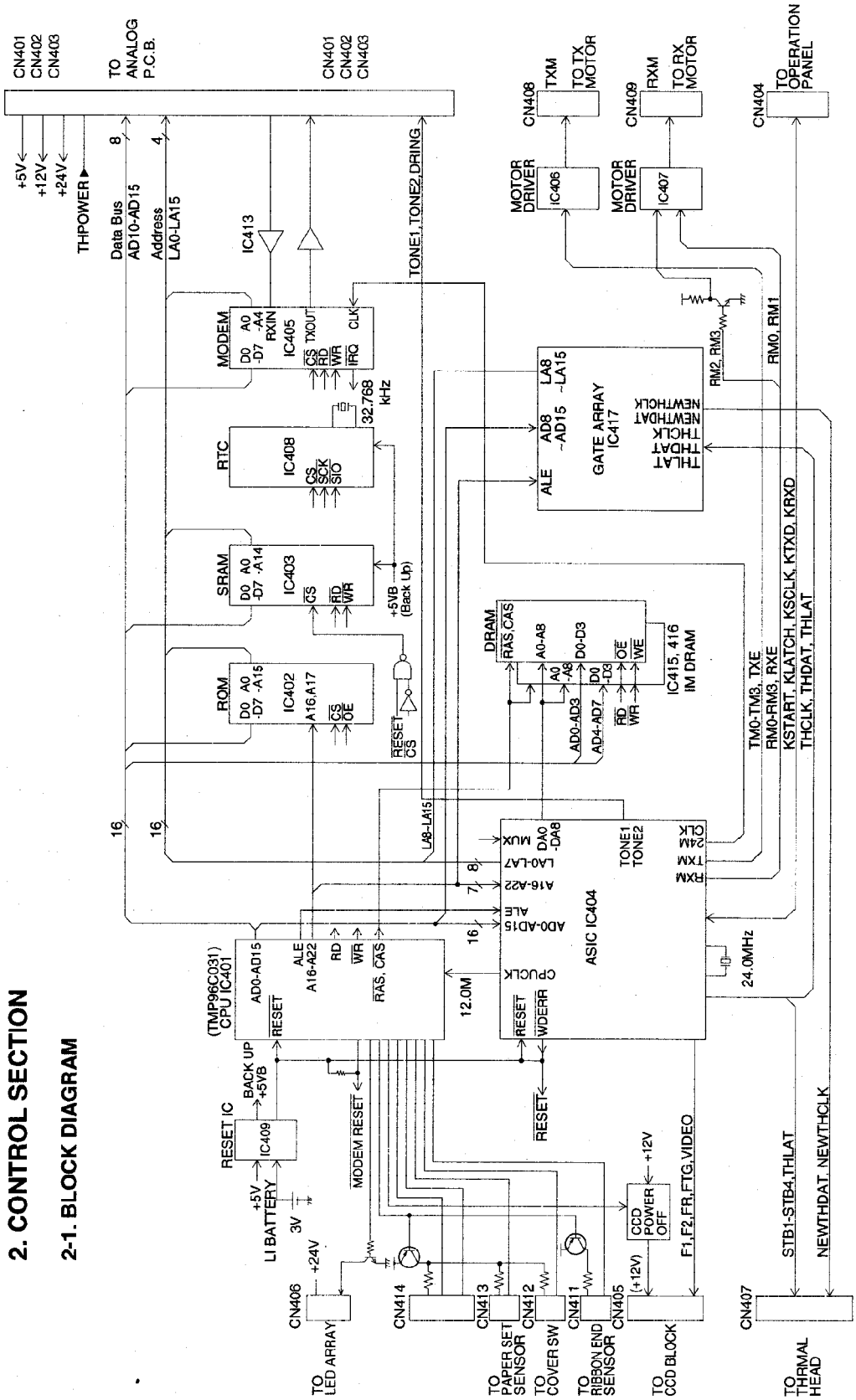


General Block Diagram



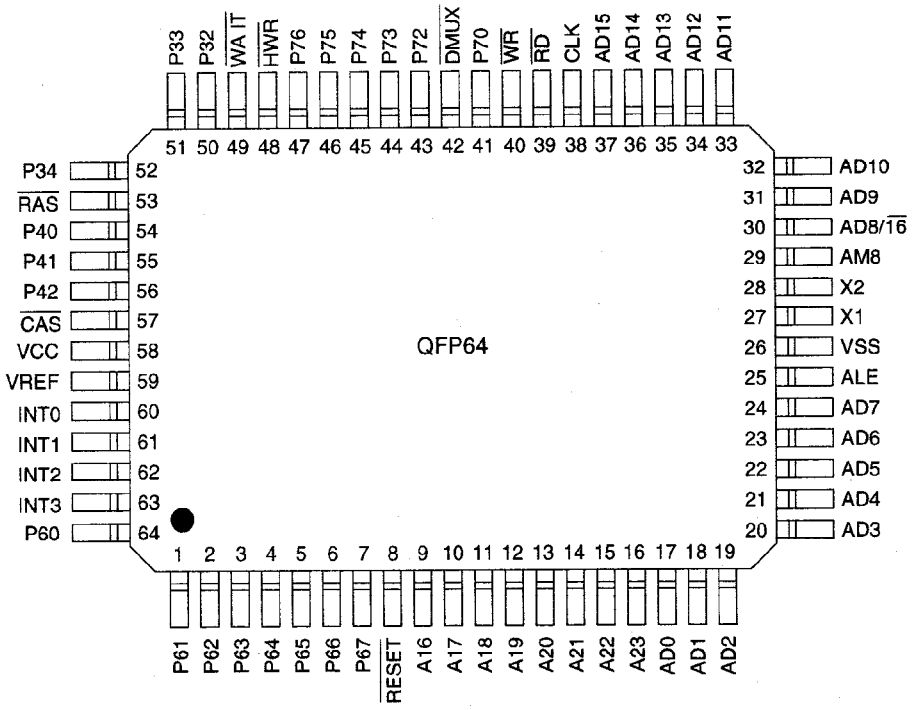
2. CONTROL SECTION

2-1. BLOCK DIAGRAM



2-2. CPU (IC401)

The KX-F1000/KX-F1020 uses a TMP96C031 CPU operating at 12MHz. Read and write cycle timing chart is shown below.

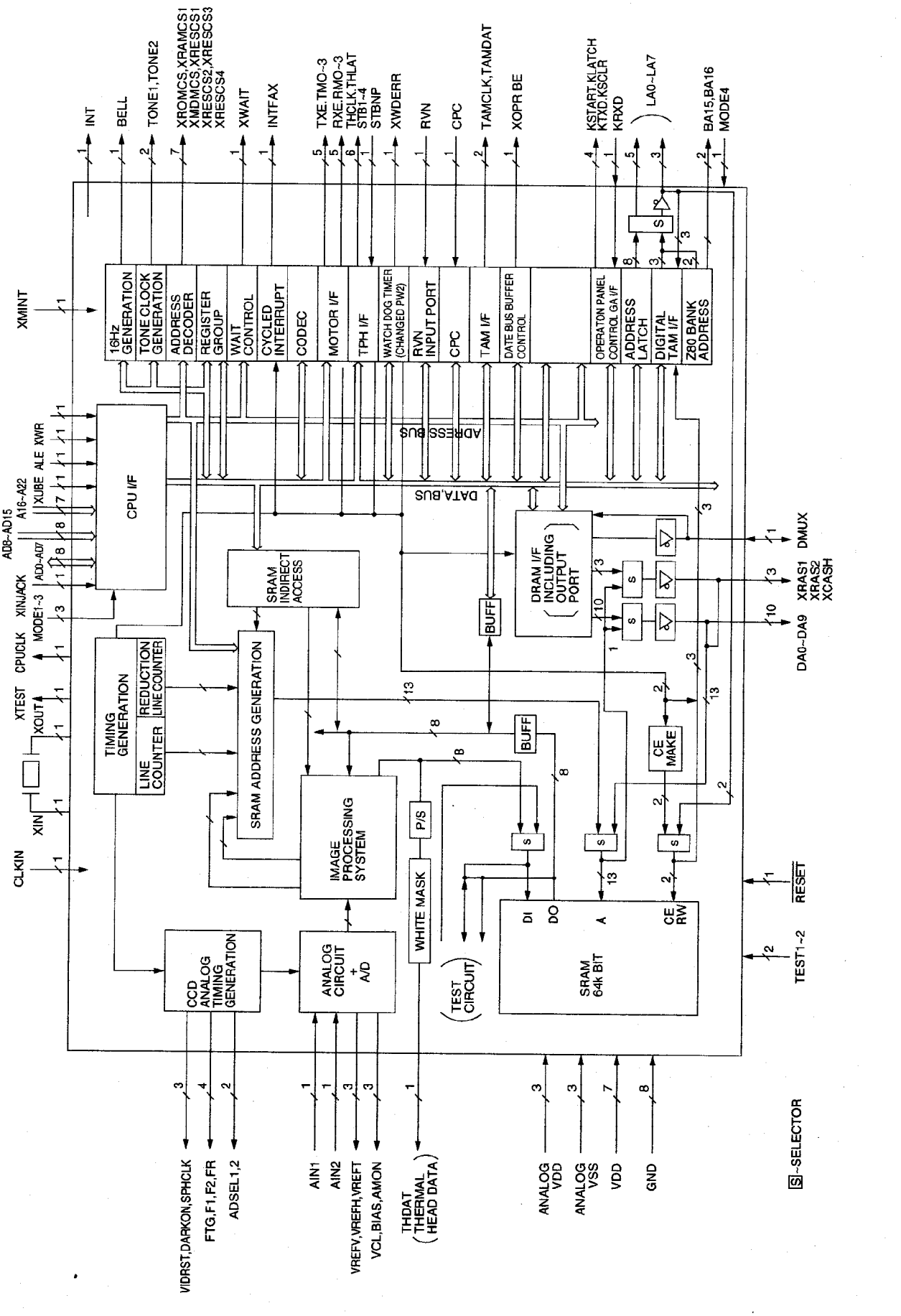


Pin Chip Carrier Pin Assignmets

1) Pin Descriptions

AD0 - AD15	Address/Date Bus (input/output).
A16 - A23	Address Bus (output).
$\overline{RD}$	Read (output, active Low). $\overline{RD}$ indicate that the CPU wants to read date from AD0 - AD15.
$\overline{WR}$	Write (output, active Low). $\overline{WR}$ indicate that the CPU Address/Data bus (AD0 - AD7) holds valid data.
$\overline{HWR}$	Write (output, active Low). $\overline{HWR}$ indicate that the CPU Address/Data bus (AD8 - AD15) holds valid data.
ALE	Address Latch Enable (output, active High). ALE indicate that the CPU Address/Data bus (AD0 - AD15) holds valid address.
$\overline{RESET}$	Reset (input, active Low).
$\overline{RAS}$	Row Address Strove (output, active Low). DRAM interface.
$\overline{CAS}$	Colomn Address Strove (output, active Low). DRAM interface.
$\overline{DMUX}$	DRAM address MU1tipleX (output).
INT1	Interrupt Request (input).

IC404 Block Diagram (Fig. A)



Explanation of Pin Distribution (IC404)

SIGNAL	NO.	I/O	Pu/Pd	Explanation
AD0	104	I/O	Pu	CPU (IC401) ADDRESS/DATA BUS AD0
AD1	103	I/O	Pu	CPU (IC401) ADDRESS/DATA BUS AD1
AD2	102	I/O	Pu	CPU (IC401) ADDRESS/DATA BUS AD2
AD3	101	I/O	Pu	CPU (IC401) ADDRESS/DATA BUS AD3
AD4	99	I/O	Pu	CPU (IC401) ADDRESS/DATA BUS AD4
AD5	98	I/O	Pu	CPU (IC401) ADDRESS/DATA BUS AD5
AD6	97	I/O	Pu	CPU (IC401) ADDRESS/DATA BUS AD6
AD7	96	I/O	Pu	CPU (IC401) ADDRESS/DATA BUS AD7
AD8	95	I	Pu	CPU (IC401) ADDRESS/DATA BUS AD8
AD9	94	I	Pu	CPU (IC401) ADDRESS/DATA BUS AD9
AD10	93	I	Pu	CPU (IC401) ADDRESS/DATA BUS AD10
AD11	92	I	Pu	CPU (IC401) ADDRESS/DATA BUS AD11
AD12	89	I	Pu	CPU (IC401) ADDRESS/DATA BUS AD12
AD13	88	I	Pu	CPU (IC401) ADDRESS/DATA BUS AD13
AD14	87	I	Pu	CPU (IC401) ADDRESS/DATA BUS AD14
AD15	86	I	Pu	CPU (IC401) ADDRESS/DATA BUS AD15
A16	112	I	Pu	CPU (IC401) ADDRESS BUS A16
A17	111	I	Pu	CPU (IC401) ADDRESS BUS A17
A18	110	I	Pu	CPU (IC401) ADDRESS BUS A18
A19	109	I	Pu	CPU (IC401) ADDRESS BUS A19
A20	107	I	Pu	CPU (IC401) ADDRESS BUS A20
A21	106	I	Pu	CPU (IC401) ADDRESS BUS A21
A22	150	I	Pu	CPU (IC401) ADDRESS BUS A22
XUBE	113	I	Pu	LOW FIXED
ALE	83	I	Pu	CPU (IC401) ALE
XWR	84	I	Pu	CPU (IC401) $\overline{WR}$
XRD	85	I	Pu	CPU (IC401) $\overline{RD}$
XWAIT	80	O		NOT USED
MODE1	37	I		LOW FIXED
MODE2	38	I		LOW FIXED
MODE3	39	I		LOW FIXED
XMINT	72	I		NOT USED
INT	79	O		CPU (IC401) INT1
XINTACK	78	I/O		NOT USED
XIN	57	I		SYSTEM CLOCK (24 MHz) CONNECTION
XOUT	56	O		SYSTEM CLOCK (24 MHz) CONNECTION
XTEST	59	O		NOT USED
CPUCLK	81	O		CPU (IC401) X1 (12 MHz)
CLKIN	60	I		LOW FIXED
DA0	115	I		DRAM (IC415, 416) ADDRESS A0
DA1	116	I		DRAM (IC415, 416) ADDRESS A1
DA2	118	I/O		DRAM (IC415, 416) ADDRESS A2
DA3	119	I/O		DRAM (IC415, 416) ADDRESS A3
DA4	120	I/O		DRAM (IC415, 416) ADDRESS A4
DA5	121	I/O		DRAM (IC415, 416) ADDRESS A5
DA6	122	I/O		DRAM (IC415, 416) ADDRESS A6
DA7	123	I		DRAM (IC415, 416) ADDRESS A7
DA8	124	I		DRAM (IC415, 416) ADDRESS A8
DA9	125	O		DRAM (IC415, 416) ADDRESS A9
XRAS1	129	O		NOT USED
XRAS2	130	O		NOT USED
XCASH	131	O		NOT USED
DMUX	128	I/O		CPU (IC401) $\overline{DMUX}$

SIGNAL	PIN NO	I/O	Pu/Pd	Explanation
FTG	12	O		SH SIGNAL OUTPUT FOR CCD
F1	15	O		01 SIGNAL OUTPUT FOR CCD
F2	14	O		02 SIGNAL OUTPUT FOR CCD
FR	13	O		RS SIGNAL OUTPUT FOR CCD
VIDRST	11	O		CLAMP CONTROL SIGNAL FOR DC PLAY BACK
SPHCLK	10	O		IMAGE SIGNAL S/H CLOCK SIGNAL
DARKON	9	O		S/H CLOCK SIGNAL FOR LIGHT SCHIELD OUTPUT CLAMP
ADSEL1	8	O		CHANNEL SELECT SIGNAL FOR AIN 2 TERMINAL A/D INPUT
ADSEL2	7	O		CHANNEL SELECT SIGNAL FOR AIN 2 TERMINAL A/D INPUT
THDAT	33	O		RECORDED IMAGE OUTPUT TO THERMAL HEAD
THCLK	35	O		CLOCK OUTPUT FOR DATA TRANSFER TO THERMAL HEAD
THLAT	34	O		PULSE OUTPUT FOR DATA LATCH TO THERMAL HEAD
STB1	29	O		STROBE SIGNAL OUTPUT TO THERMAL HEAD
STB2	30	O		STROBE SIGNAL OUTPUT TO THERMAL HEAD
STB3	31	O		STROBE SIGNAL OUTPUT TO THERMAL HEAD
STB4	32	O		STROBE SIGNAL OUTPUT TO THERMAL HEAD
STBNP	28	I		THERMAL HEAD STROBE SIGNALS POLARITY CONTROL SIGNAL
TM0	23	O		TRANSFER MOTOR A PHASE
TM1	24	O		TRANSFER MOTOR B PHASE
TM2	25	O		TRANSFER MOTOR/A PHASE
TM3	26	O		TRANSFER MOTOR/ B PHASE
TXE	27	O		TRANSFER MOTOR ENABLE SIGNAL
RM0 (PS1)	17	O		TRANSFER MOTOR A PHASE
RM1 (PS2)	16	O		TRANSFER MOTOR B PHASE
RM2 (PS3)	20	O		TRANSFER MOTOR/A PHASE
RM3 (PS4)	21	O		TRANSFER MOTOR/ B PHASE
RXE	22	O		TRANSFER MOTOR ENABLE SIGNAL
BELL	42	O		16Hz GENERATES
TONE1	43	O		TONE OUTPUT, FOR BEEP•KEY TONE•ALARM
TONE2	44	O		TONE OUTPUT, FOR BEEP•KEY TONE•ALARM
XROMCS	74	O		ROM (IC402) CHIP SELECT
XRAMCS1	75	O		RAM (IC403) CHIP SELECT
XMDMCS	73	O		MODEM (IC405) CHIP SELECT
XRESCS	70	O		ANALOG BOARD (IC1) CHIP SELECT
XRESCS2	69	O		RTC (IC408) CHIP SELECT
XRESCS3	68	O		CHIP SELECT FOR SPARE (NOT USED)
XRESCS4	67	O		CHIP SELECT FOR SPARE (NOT USED)
XWDERR	114	O		WATCHED ERROR OUTPUT SIGNAL
RVN (PS5)	40	I		NOT USED
CPC	41	I		NOT USED
TAMCLK	62	O		NOT USED
TAMDAT	63	O		
XOPRBE	71	O		NOT USED
KSTART	136	O		OPERATION PANEL CONTROL GAI/F
KLATCH	135	O		OPERATION PANEL CONTROL GAI/F
KXCLK	134	O		OPERATION PANEL CONTROL GAI/F
KTXD	133	O		OPERATION PANEL CONTROL GAI/F
KRXD	132	O		OPERATION PANEL CONTROL GAI/F
LA0	53	O		LATCH ADDRESS LA0
LA1	52	O		LATCH ADDRESS LA1

SIGNAL	PIN NO	I/O	Pu/Pd	Explanation
LA2	51	O		LATCH ADDRESS LA2
LA3	50	O		LATCH ADDRESS LA3
LA4	49	O		LATCH ADDRESS LA4
LA5	48	I/O		LATCH ADDRESS LA5
LA6	47	I/O		LATCH ADDRESS LA6
LA7	46	I/O		LATCH ADDRESS LA7
MODE4	61	I		LOW FIXED
BA15	77	O		NOT USED
BA16	76	O		NOT USED
XRESET	66	I		SYSTEM RESET SIGNAL INPUT
TEST1	64	I		LOW FIXED
TEST2	65	I		LOW FIXED
AIN1	4			CCD IMAGE SIGNAL INPUT
AIN2	2			THERMISTER TEMPARATURE WATCH INPUT
VCL	5			ANALOG PART STANDARD VOLTAGE SIGNAL OUTPUT/INPUT TERMINAL (IN RESISTOR, POSSIBLE TO INPUT.)
AMON	3			ANALOG SIGNAL MONITOR TERMINAL
BIAS	143			A/D CONVERTER'S BIAS VOLTAGE OUTPUT, CONNECT BYPASS CONDENSOR
VREFB	137			A/C CONVERTER'S ZERO STANDART VOLTAGE OUTPUT
VREFH	142			A/D CONVERTER'S 1/2 FULL SCALE VOLTAGE OUTPUT, CONNECT BYPASS CONDENSOR
VREFT	140			A/C CONVERTER'S FULL SCALE VOLTAGE OUTPUT, CONNECT BYPASS CONDENSOR
VDDA	141			A/D CONVERTER VDD (+5V)
VSSA	144			A/D CONVERTER VSS (GND)
VDDB	6			S/H, CLAMP, AGC VDD (+5V)
VSSB	1			S/H, CLAMP, AGC VSS (GND)
VDDC	139			A/D CONVERTER'S VDD (+5V) FOR REFERENCE
VSSC	138			A/D CONVERTER'S VSS (GND) FOR REFERENCE
VDD	18			Power Sorce (+5V)
VDD	45			Power Sorce (+5V)
VDD	54			Power Sorce (+5V)
VDD	82			Power Sorce (+5V)
VDD	90			Power Sorce (+5V)
VDD	117			Power Sorce (+5V)
VDD	126			Power Sorce (+5V)
VSS	19			Power Sorce (GND)
VSS	36			Power Sorce (GND)
VSS	55			Power Sorce (GND)
VSS	58			Power Sorce (GND)
VSS	91			Power Sorce (GND)
VSS	100			Power Sorce (GND)
VSS	108			Power Sorce (GND)
VSS	127			Power Sorce (GND)

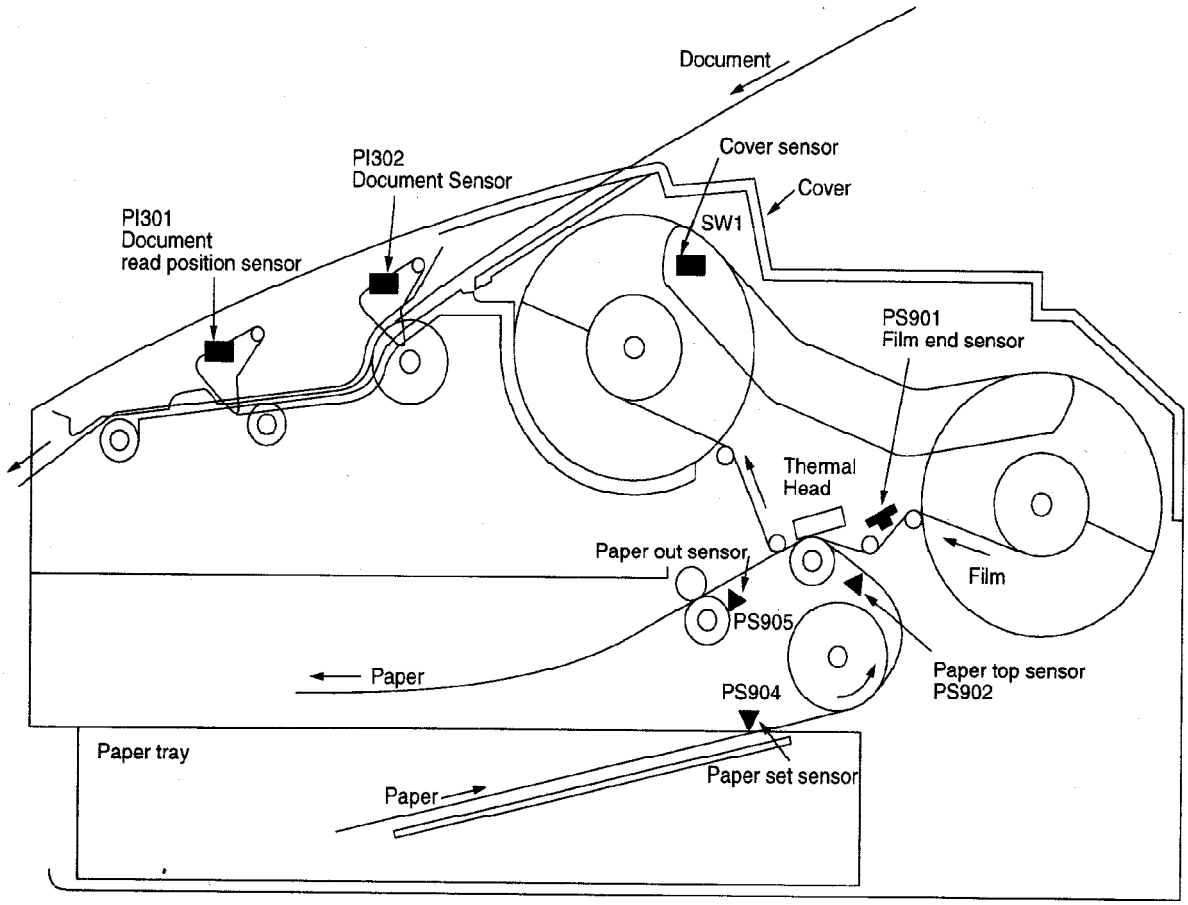
3-5. SENSORS AND SWITCHES

KX-F1000/KX-F1020 has many paper, film handring and check cover sensor. All of sensor shows below.

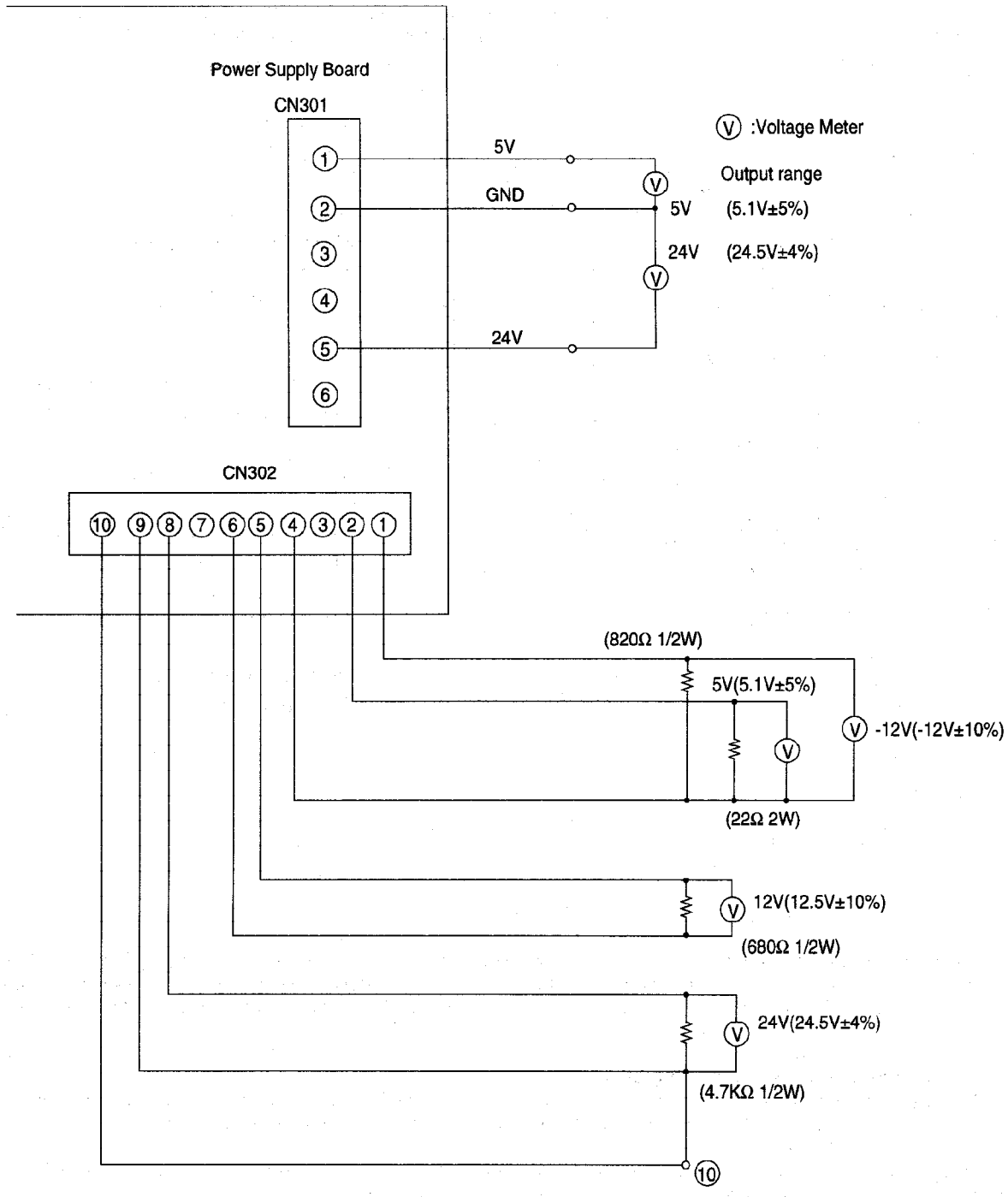
Sensor Circuit Location	Sensor	Sensor name	Mainly LCD Error Message at sensor fail
Operation Panel	PI302	Document	「CHECK DOCUMENT」
	PI301	Document Read Position	「REMOVE DOCUMENT」
Digital PCB & Sensor PCB	PS904	Paper Set	「OUT OF PAPER」
	PS902	Paper Top	「CHECK CASSETTE」
	PS905	Paper Out	「PAPER JAMMED」
	PS901	Film End	「FILE EMPTY」
	SW1	Cover	「CHECK COVER」

※ See TEST FUNCTION - SENSOR CHECK SECTION for sensor test. (c.f. #815 and #801 of Service Mode test.)

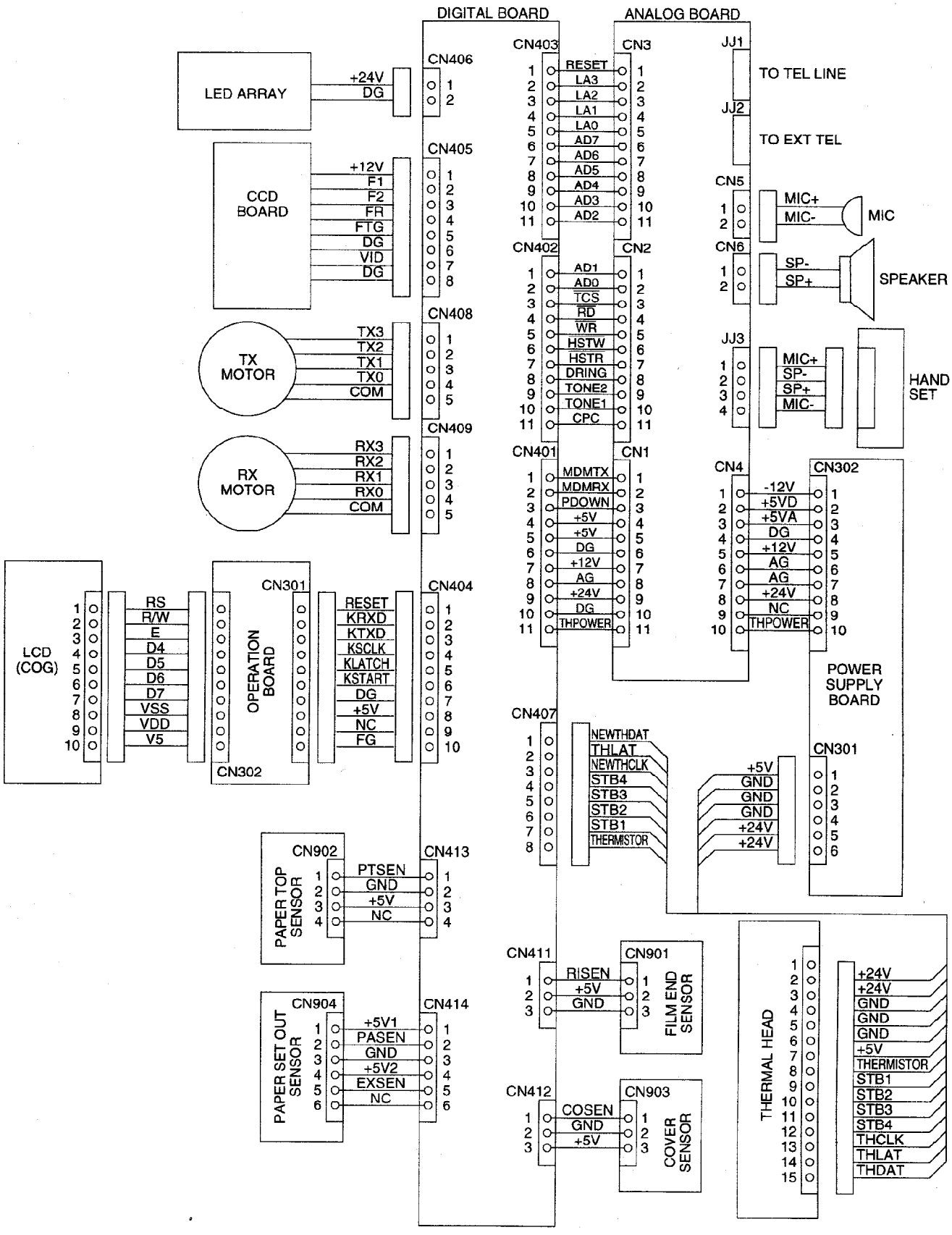
Sensor Location

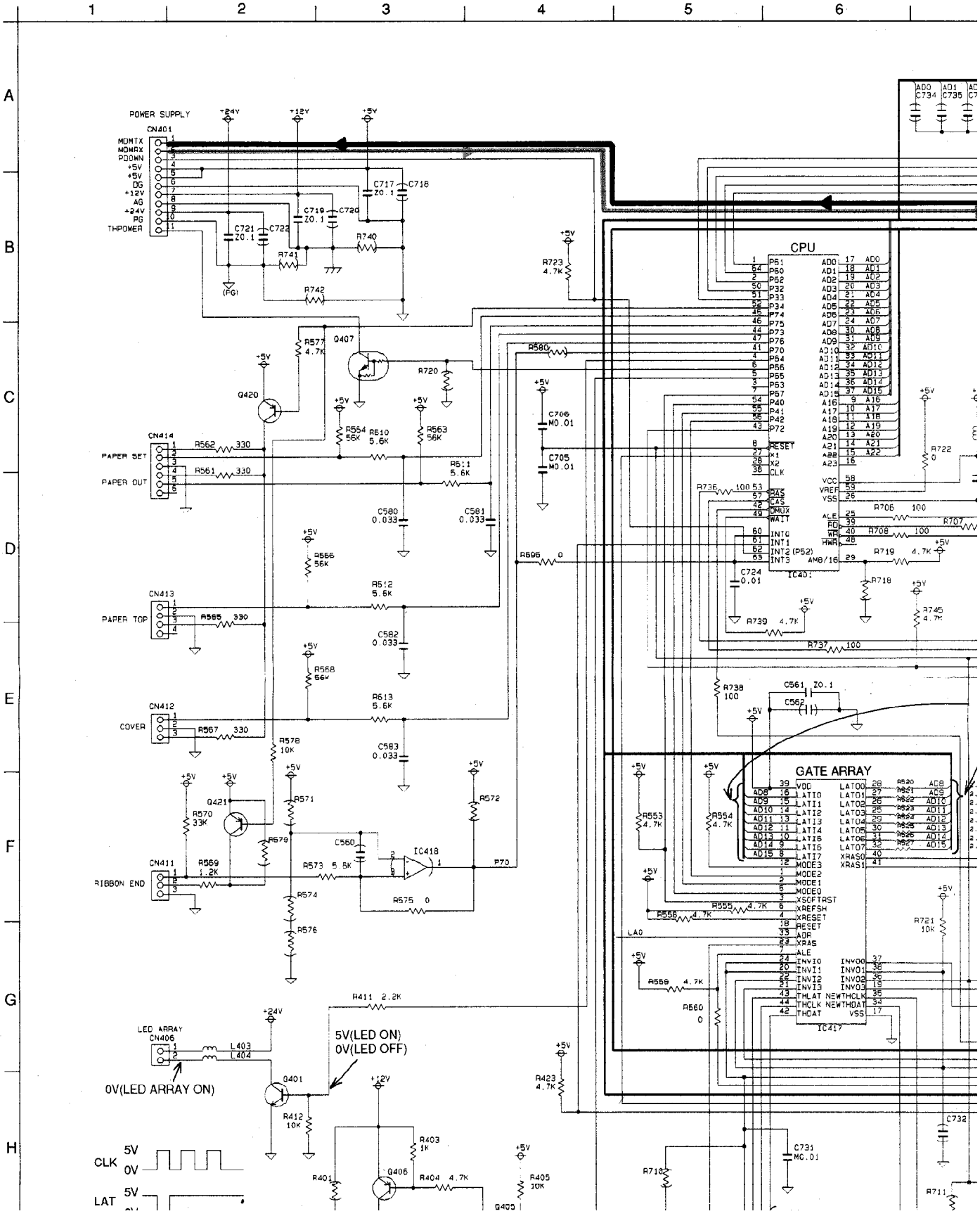


Dummy load method (for the quick check of power supply output)

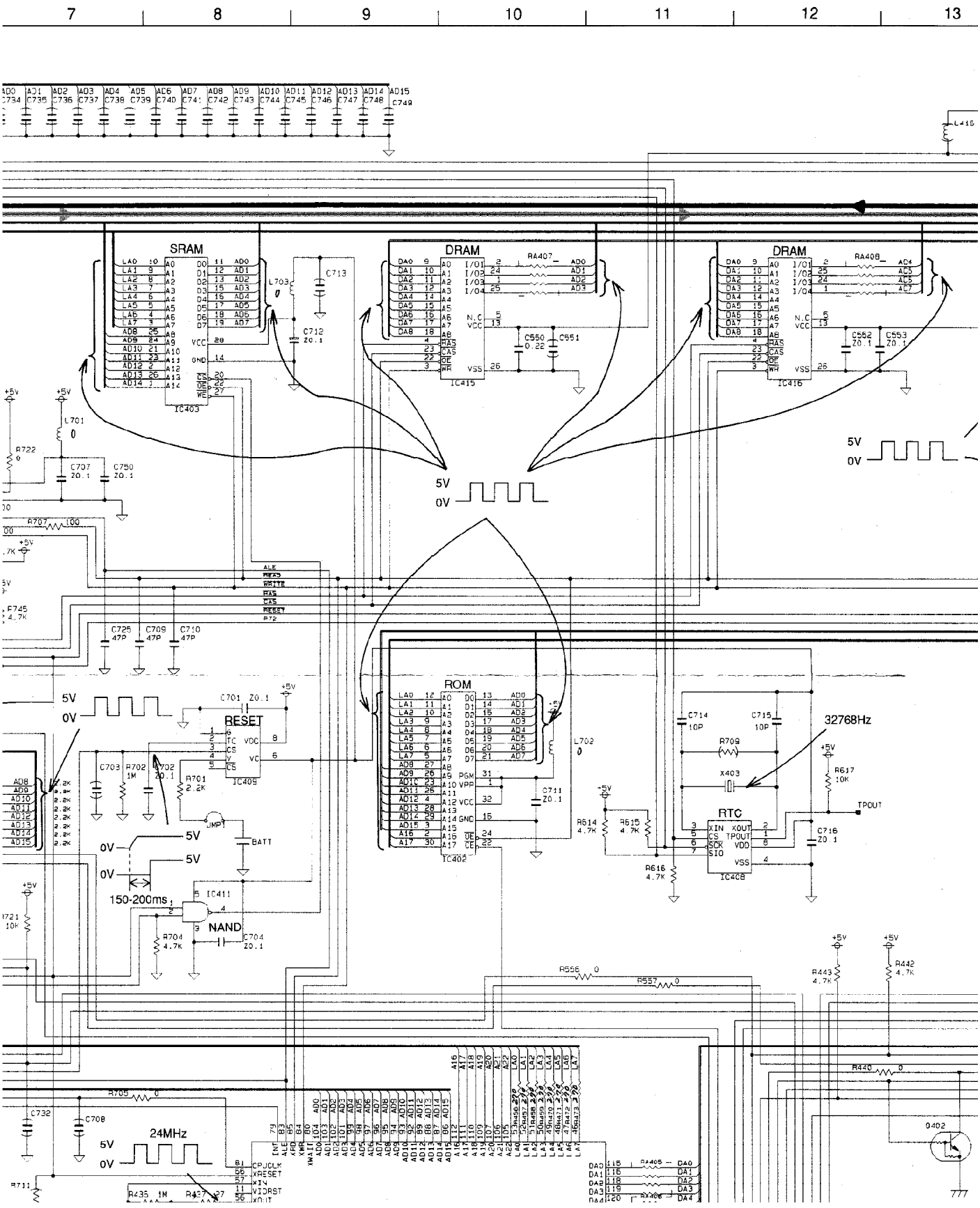


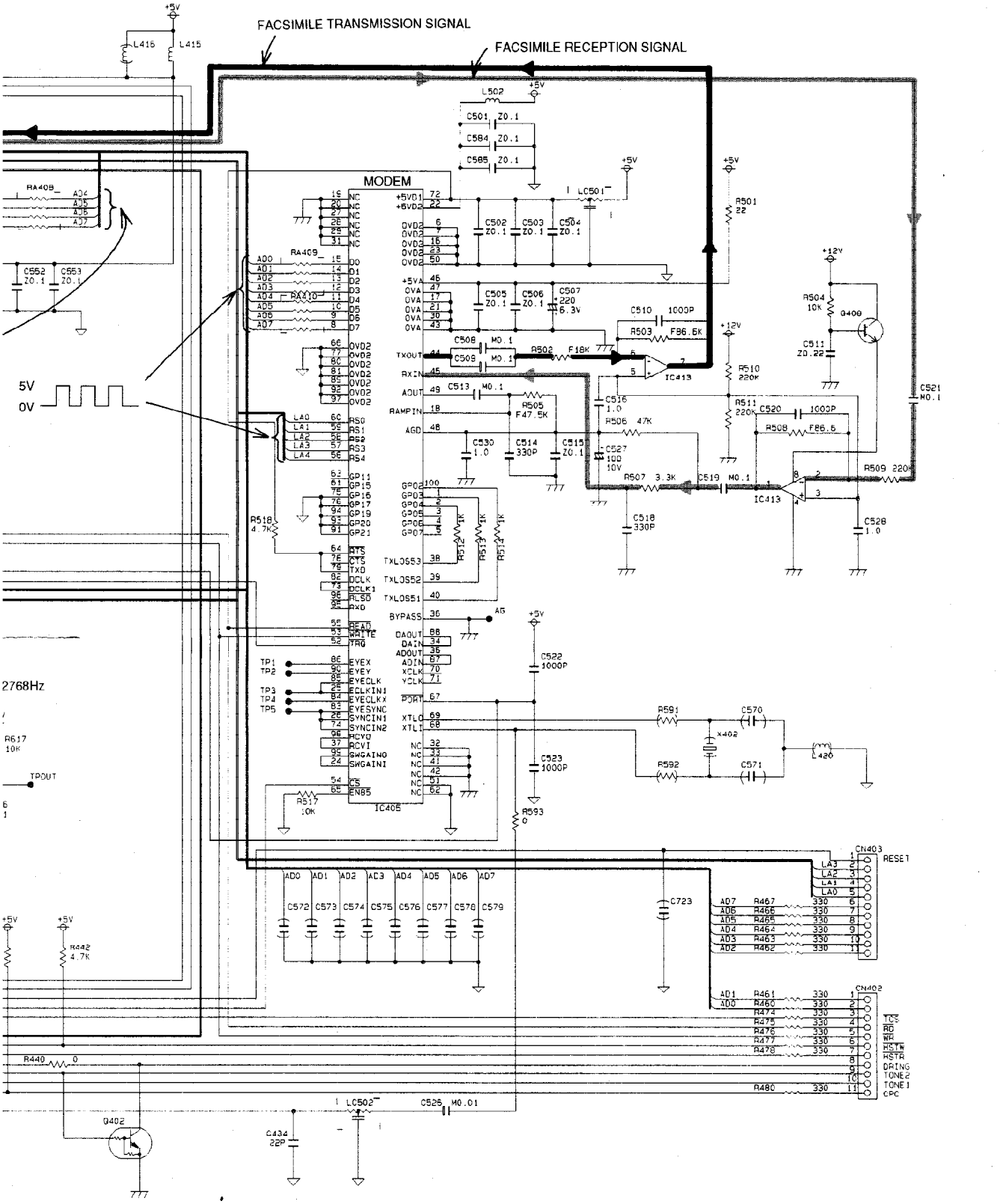
CONNECTION DIAGRAM

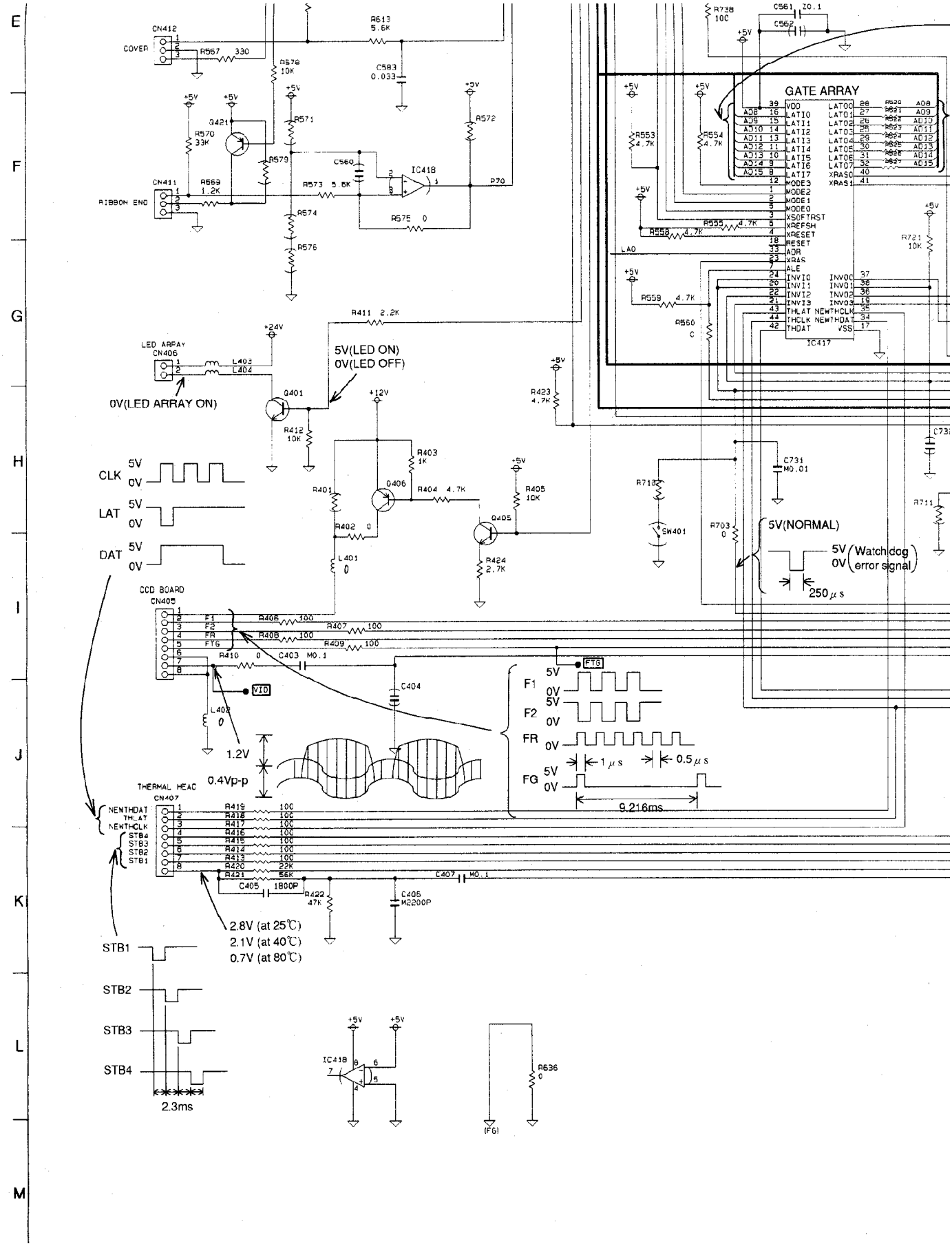


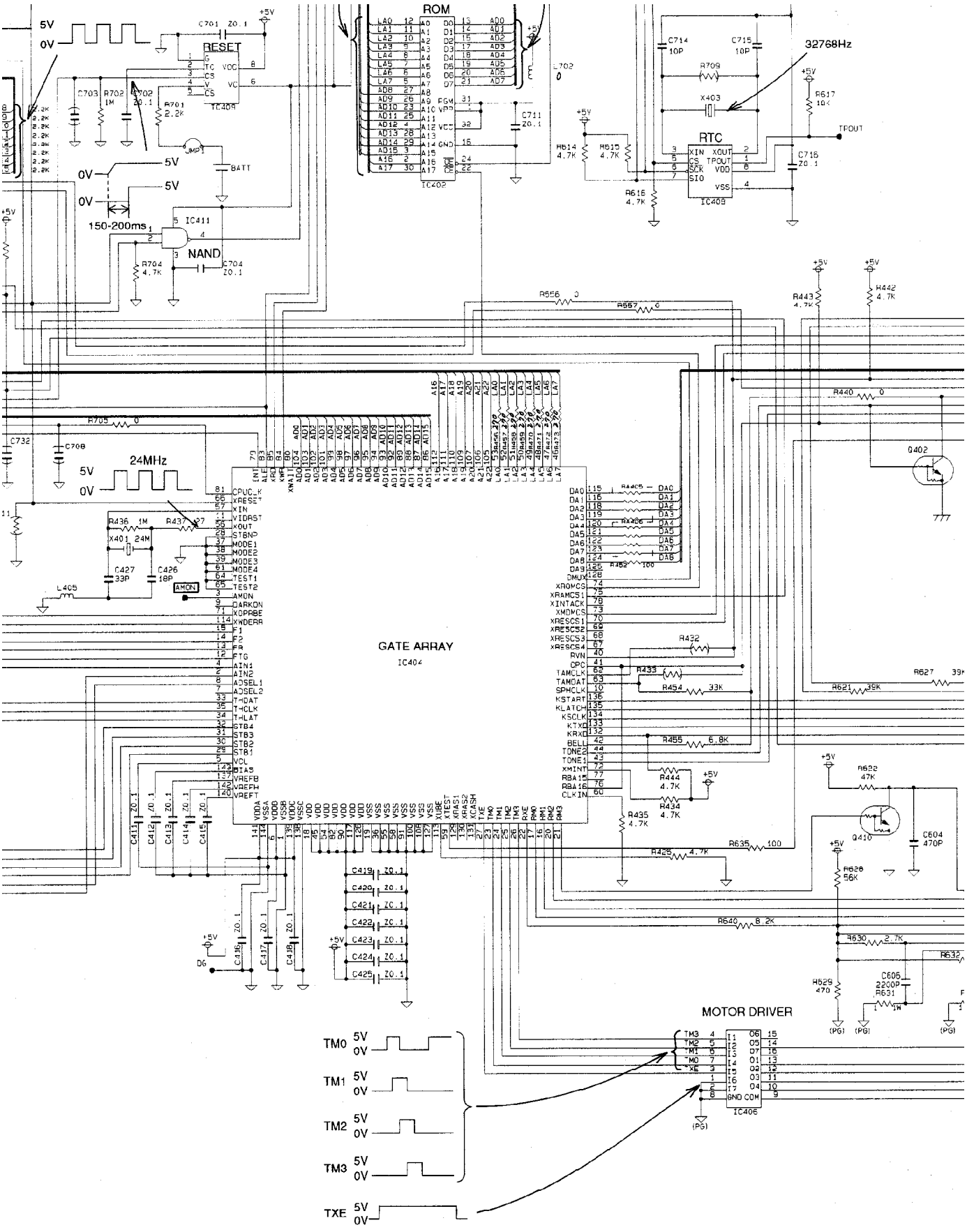

POWER SUPPLY
CN401
MOMTX
MOMRX
PDOWN
+5V
+5V
DG
+12V
AG
+24V
PG
THPOWER
C717 Z0.1
C718
C719 Z0.1
C720
C721 Z0.1
C722
R740
R741
R742
(FG)
CPU
IC401
R723 4.7K
Q407
R577 4.7K
R580
R720
Q420
C706 M0.01
C705 M0.01
R554 56K
R610 5.6K
R563 56K
CN414
PAPER SET
PAPER OUT
R562 330
R561 330
R611 5.6K
C580 0.033
C581 0.033
R736 100
R722 0
R706 100
R707
R708 100
R719 4.7K
R718
R745 4.7K
R739 4.7K
R737 100
R566 56K
R612 5.6K
CN413
PAPER TOP
R565 330
C582 0.033
R568 56K
R613 5.6K
CN412
COVER
R567 330
C583 0.033
R578 10K
R738 100
C561 Z0.1
C562
GATE ARRAY
IC417
R553 4.7K
R554 4.7K
R555 4.7K
R556 4.7K
R721 10K
R559 4.7K
R560 0
R570 33K
Q421
R571
R572
R579
C560
IC418
CN411
RIBBON END
R569 1.2K
R573 5.5K
R574
R575 0
R576
P70
LA0
R411 2.2K
LED ARRAY
CN406
L403
L404
0V(LED ARRAY ON)
5V(LED ON)
0V(LED OFF)
Q401
R412 10K
R423 4.7K
C732
C731 MG.01
R710
R711
R403 1K
Q406
R401
R404 4.7K
R405 10K
Q405
CLK 5V 0V
LAT 5V

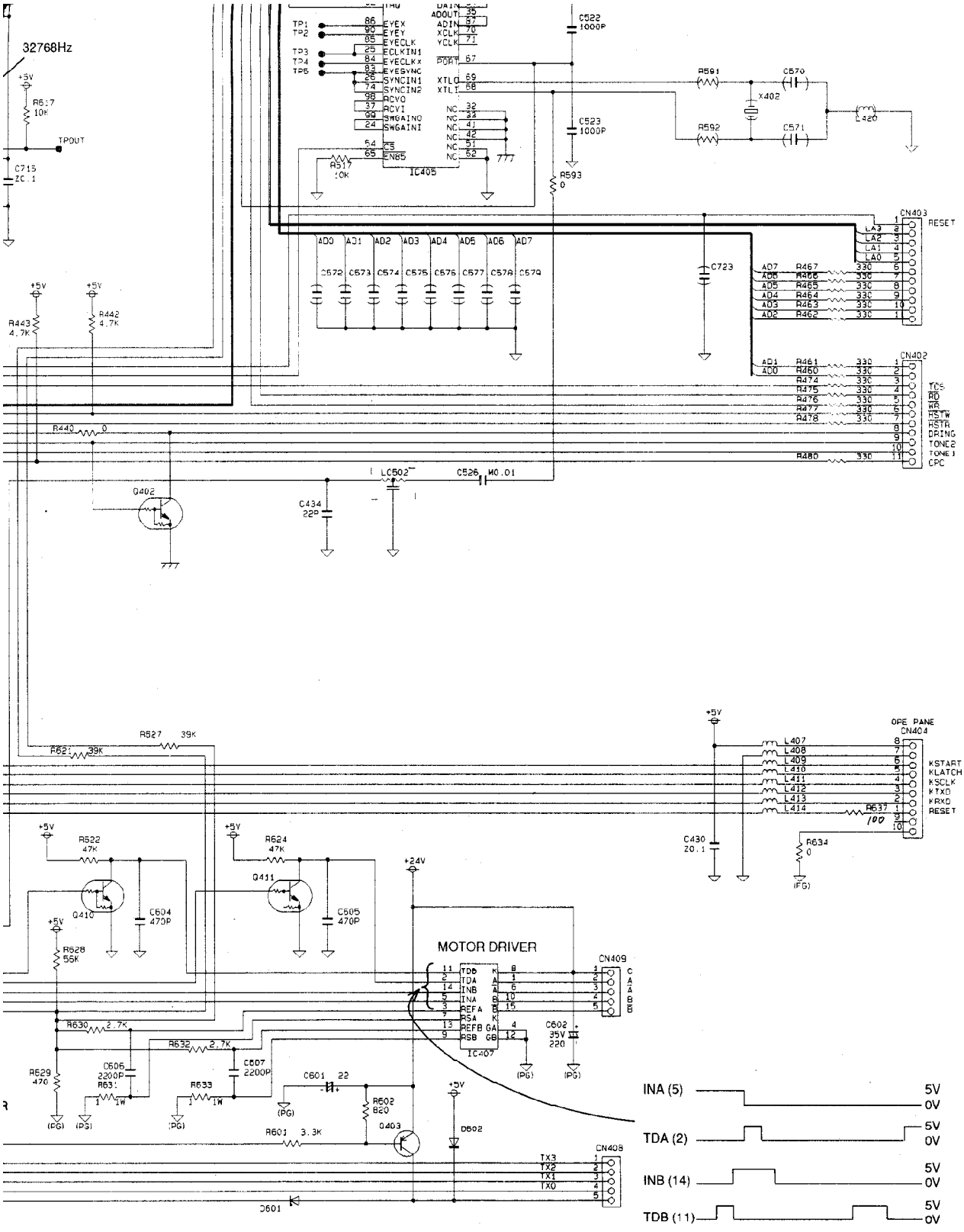
SCHEMATIC DIAGRAM (DIGITAL CIRCUIT)

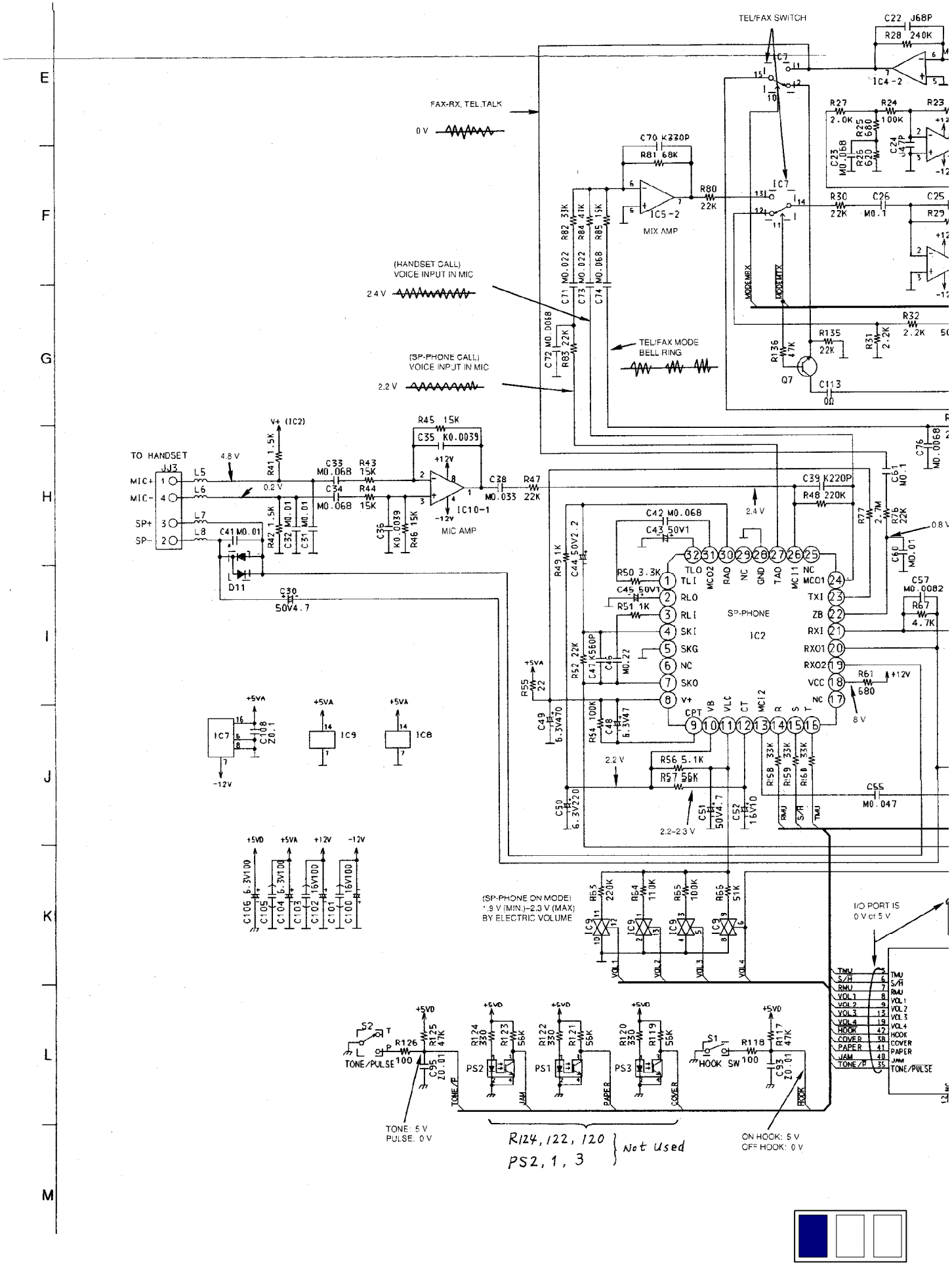



FACSIMILE TRANSMISSION SIGNAL
FACSIMILE RECEPTION SIGNAL
MODEM
IC408
IC413
5V
0V
2768Hz
TPOUT
RESET
TCS
RD
WR
HSTR
DRING
TONE2
TONE1
CPC

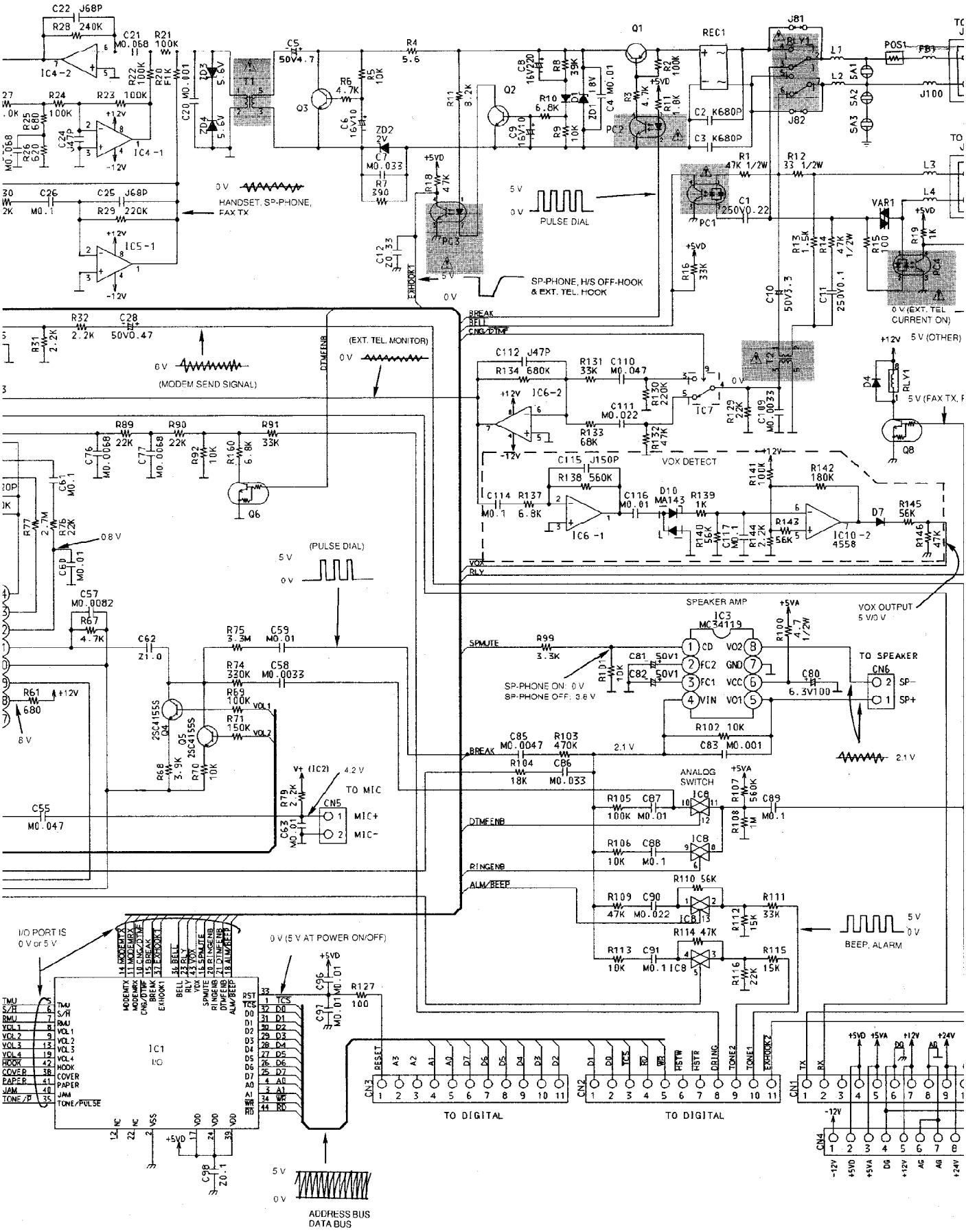

GATE ARRAY
IC417
IC418
CN412
COVER
CN411
RIBBON END
CN406
LED ARRAY
CN405
CCD BOARD
CN407
THERMAL HEAD
5V(LED ON)
0V(LED OFF)
0V(LED ARRAY ON)
5V(NORMAL)
5V (Watchdog error signal)
250 μs
CLK
LAT
DAT
F1
F2
FR
FG
1 μs
0.5 μs
9.216ms
1.2V
0.4Vp-p
2.8V (at 25℃)
2.1V (at 40℃)
0.7V (at 80℃)
STB1
STB2
STB3
STB4
2.3ms
SW401
(FG)

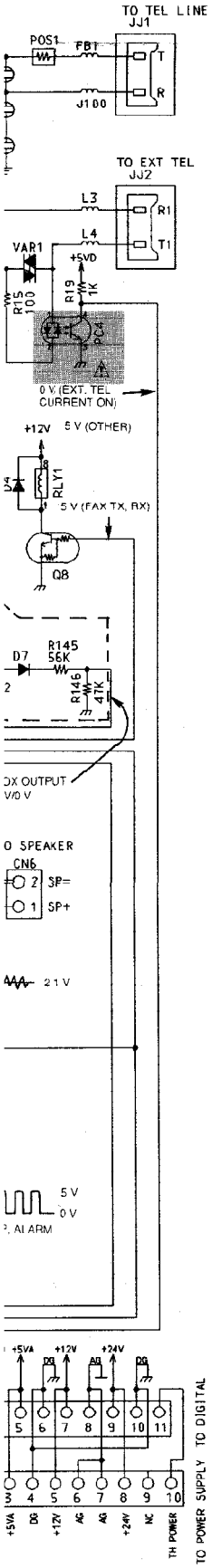

ROM
IC402
RESET
IC409
RTC
IC408
32768Hz
X403
NAND
IC411
150-200ms
BATT
JMP1
24MHz
X401
GATE ARRAY
IC404
AMON
MOTOR DRIVER
IC406
TM0
TM1
TM2
TM3
TXE
5V
0V


32768Hz
IC405
IC407
CN403
CN402
CN404
CN409
CN408
OPE PANE
MOTOR DRIVER
RESET
KSTART
KLATCH
KSCLK
KTXD
KRXD
RESET
INA (5)
TDA (2)
INB (14)
TDB (11)
5V
0V


TEL/FAX SWITCH
FAX-RX, TEL.TALK
0 V
(HANDSET CALL)
VOICE INPUT IN MIC
2.4 V
(SP-PHONE CALL)
VOICE INPUT IN MIC
2.2 V
TEL/FAX MODE
BELL RING
MIX AMP
MIC AMP
TO HANDSET
SP-PHONE
IC2
(SP-PHONE ON MODE)
1.9 V (MIN.)~2.3 V (MAX)
BY ELECTRIC VOLUME
I/O PORT IS
0 V or 5 V
TONE/PULSE
HOOK SW
TONE: 5 V
PULSE: 0 V
ON HOOK: 5 V
OFF HOOK: 0 V
R124, 122, 120
PS2, 1, 3
Not Used

SCHEMATIC DIAGRAM (ANALOG CIRCUIT)



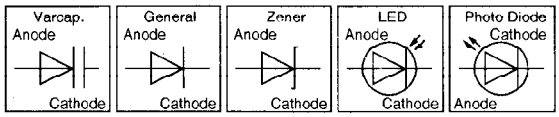


FOR SCHEMATIC DIAGRAM

Notes:

1. DC voltage measurements are taken with oscilloscope or tester from ground .
2. The schematic diagram and circuit board may be modified at any time with the development of new technology.

3.

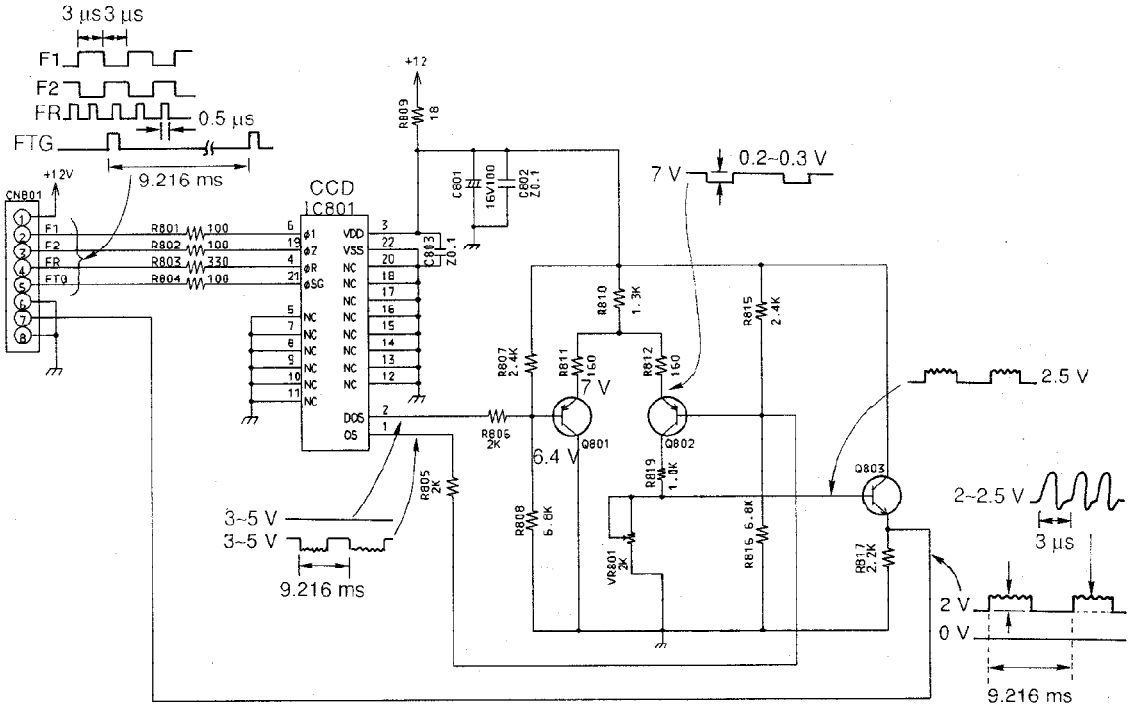


3.

Important safety notice

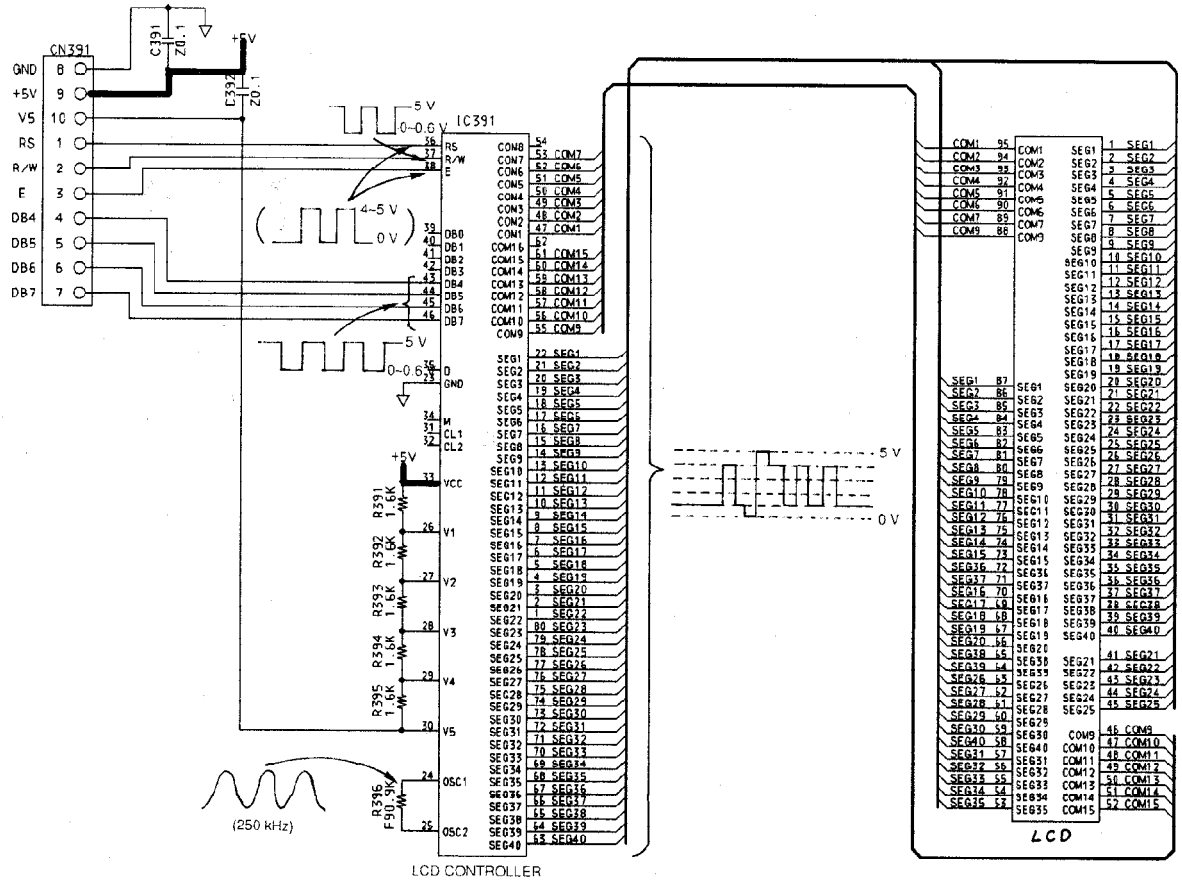
The shaded area on this schematic diagram incorporates special features important for protection from fire and electrical shock hazards.
When servicing, it is essential that only manufacturer's specified parts can be used for the critical components in the shaded areas of the schematic.

CCD CIRCUIT

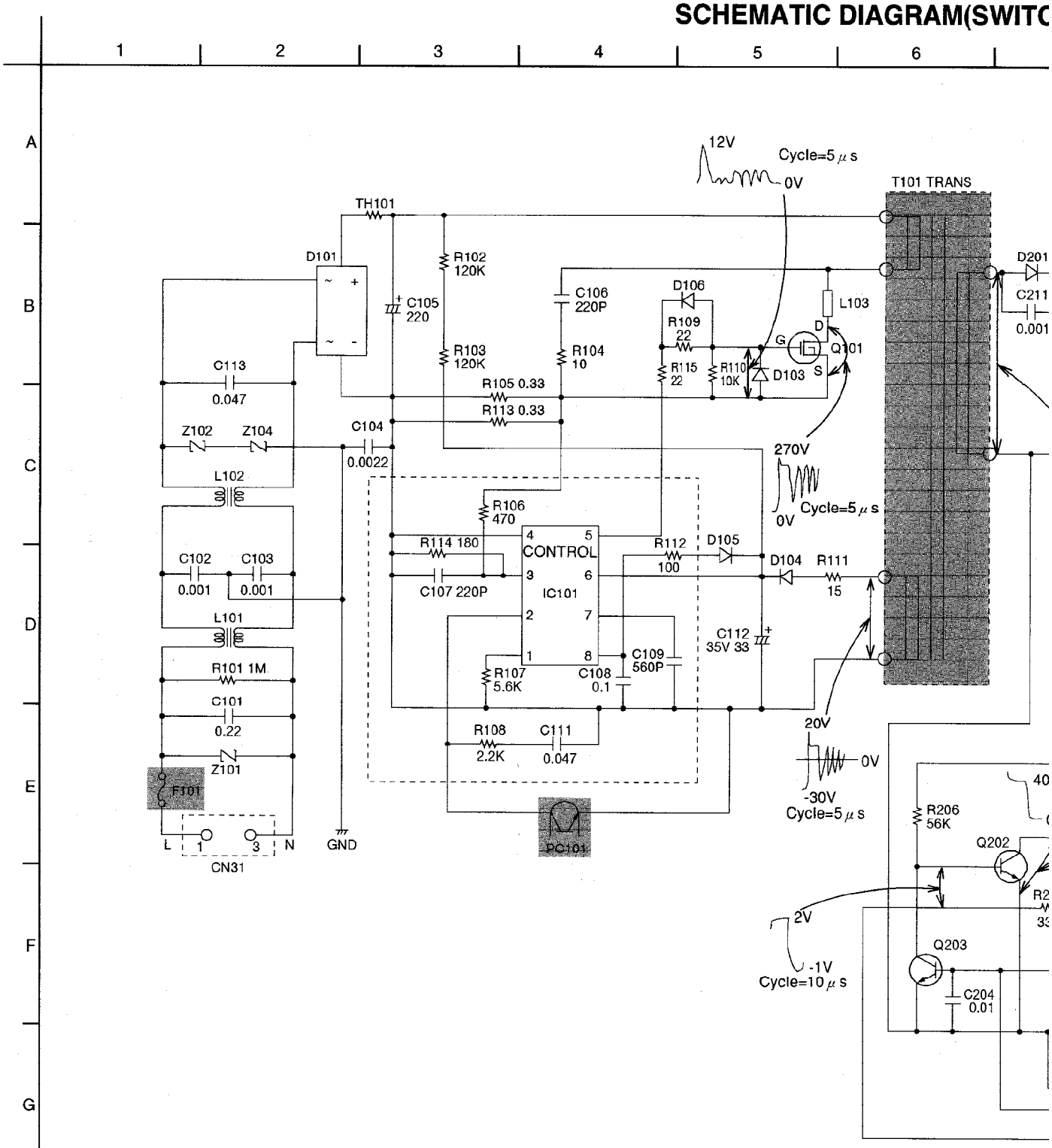


※Waveform, voltage are "COPY", "SEND", CCD/LED TEST mode.
All voltage is 0 V at standby mode.

CCD CIRCUIT


CN391
GND 8
+5V 9
VS 10
RS 1
R/W 2
E 3
DB4 4
DB5 5
DB6 6
DB7 7
C391 20.1
C392 20.1
+5V
5 V
0~0.6 V
4~5 V
0 V
IC391
LCD CONTROLLER
(250 kHz)
R391 1.6K
R392 1.6K
R393 1.6K
R394 1.6K
R395 1.6K
R396 FOR 1.5K
LCD

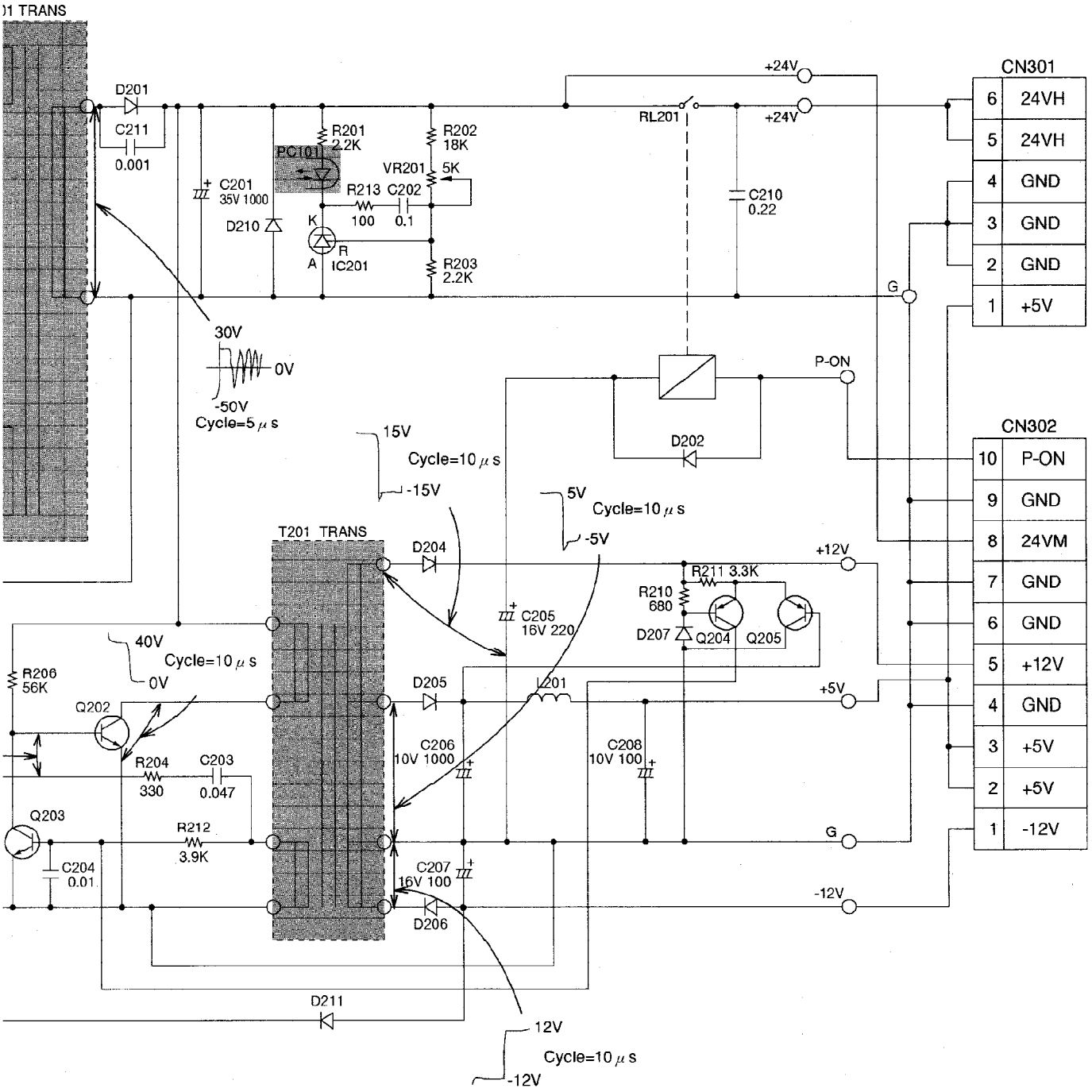
SCHEMATIC DIAGRAM(SWITC



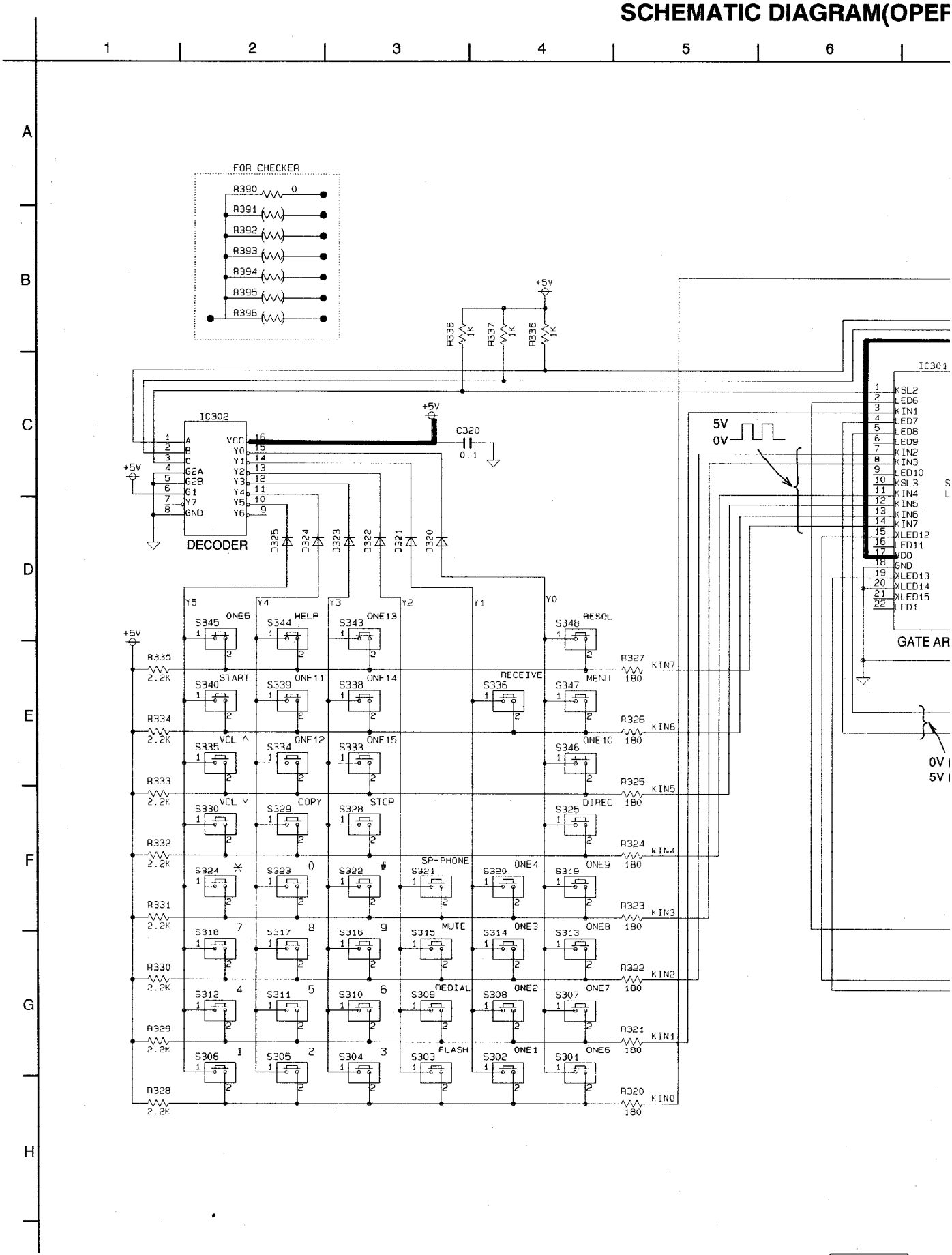
Note:
When measuring the waveform on the primary circuit of the Switch Power Supply Board, be sure to insulate the ground of the oscilloscope's probe from the ground of its power supply.

RAM(SWITCHING POWER SUPPLY)

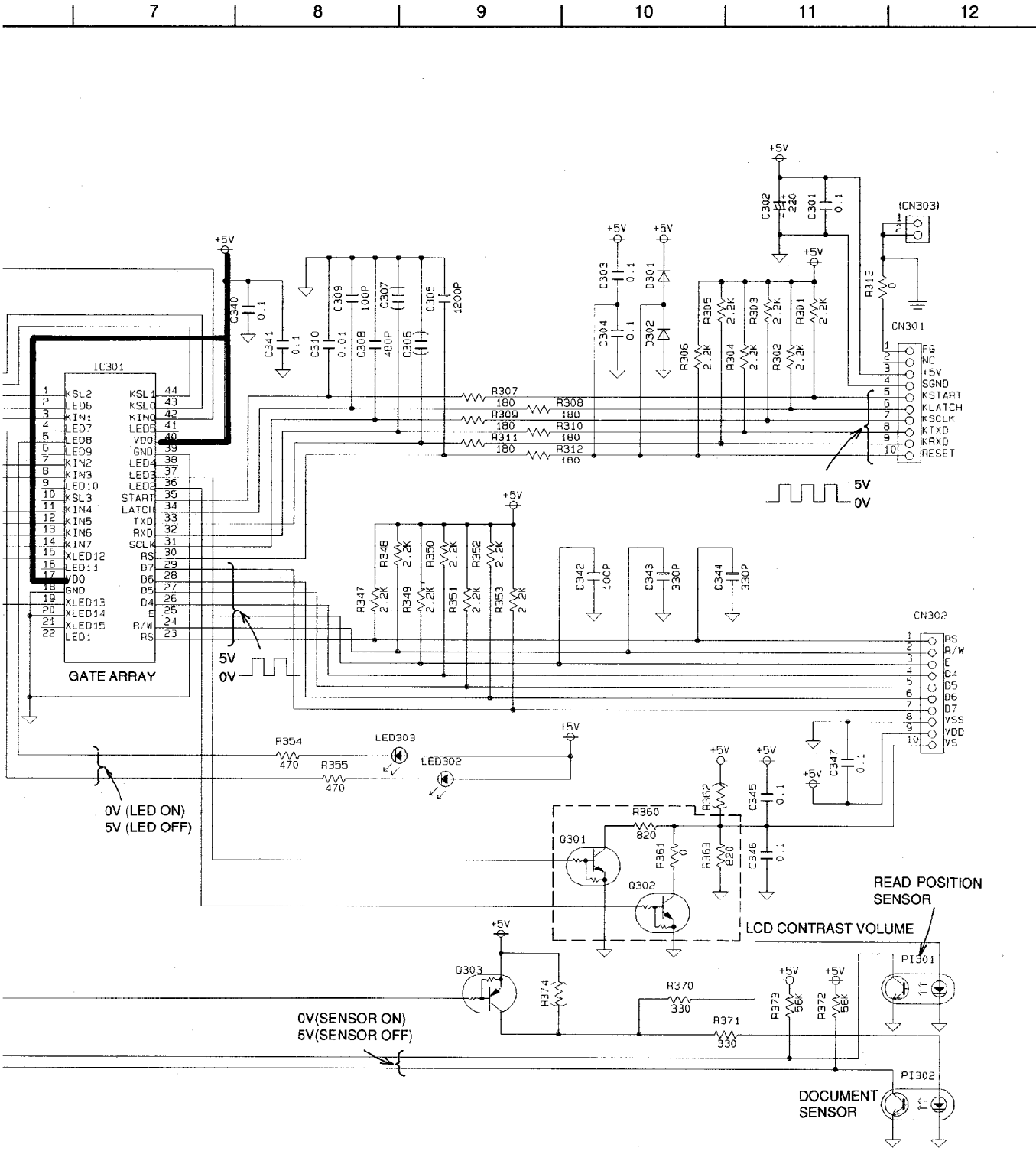
6 | 7 | 8 | 9 | 10 | 11 | 12



SCHEMATIC DIAGRAM(OPEF

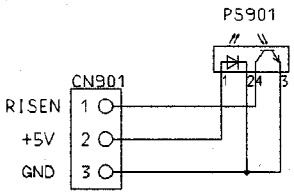


IAM(OPERATION CIRCUIT)



PQUP10616ZA-A

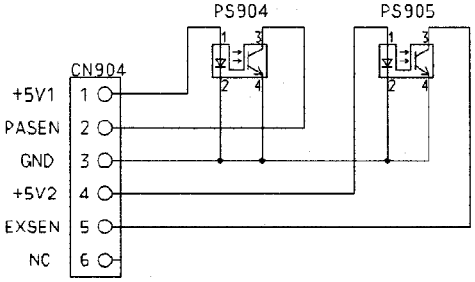
FILM END SENSOR



PQUP10616ZA-D

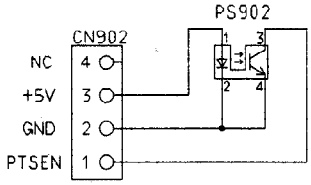
PAPER SET SENSOR (PS904)

PAPER OUT SENSOR (PS905)



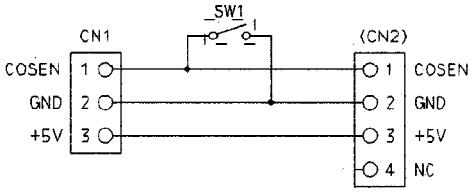
PQUP10616ZA-B

PAPER TOP SENSOR

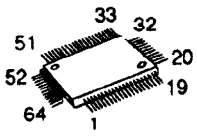
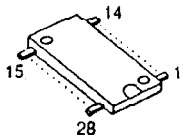
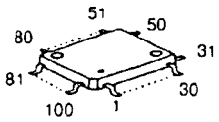
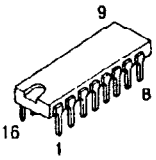
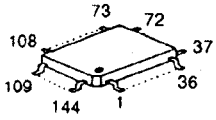
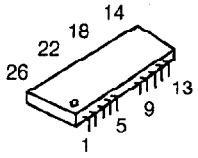
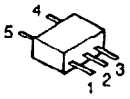
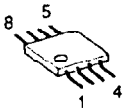
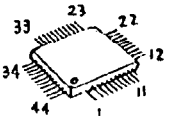
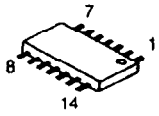
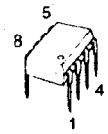
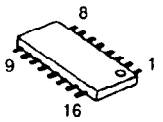
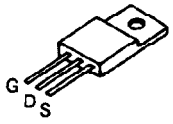
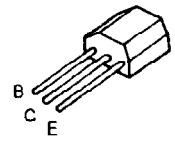
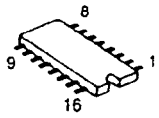
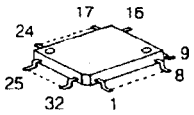
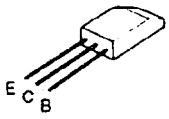
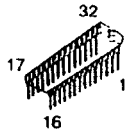
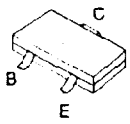
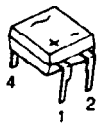
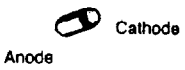
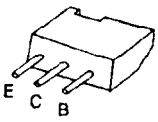
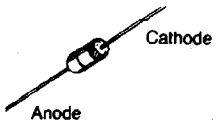
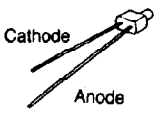
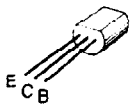
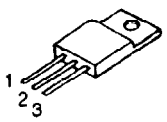
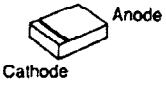
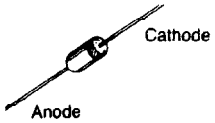
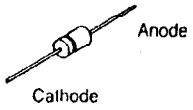
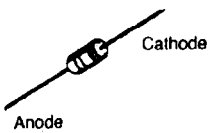
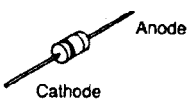
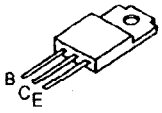


PQUP10659ZA

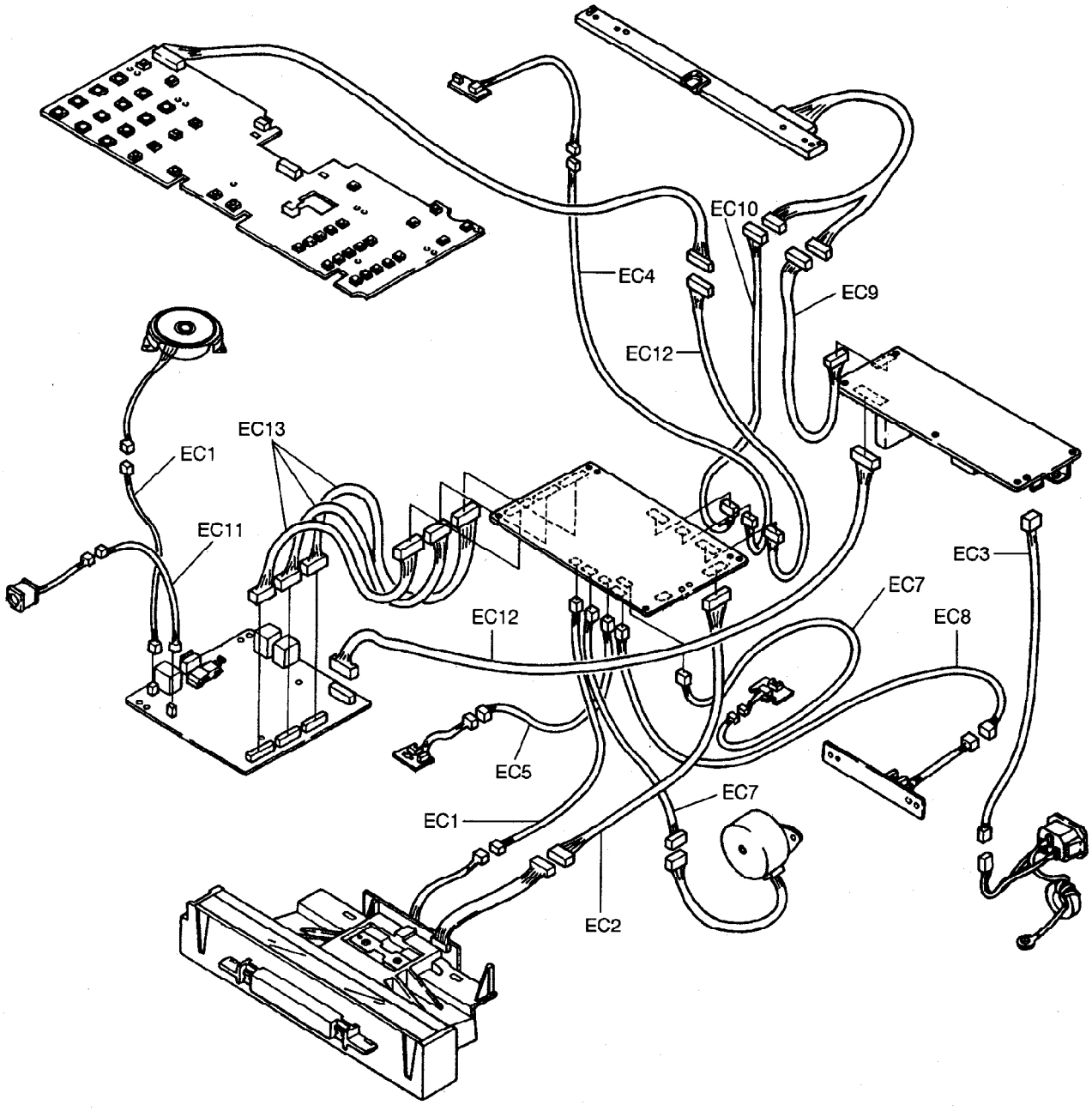
COVER SENSOR



TERMINAL GUIDE OF IC'S TRANSISTORS AND DIODES

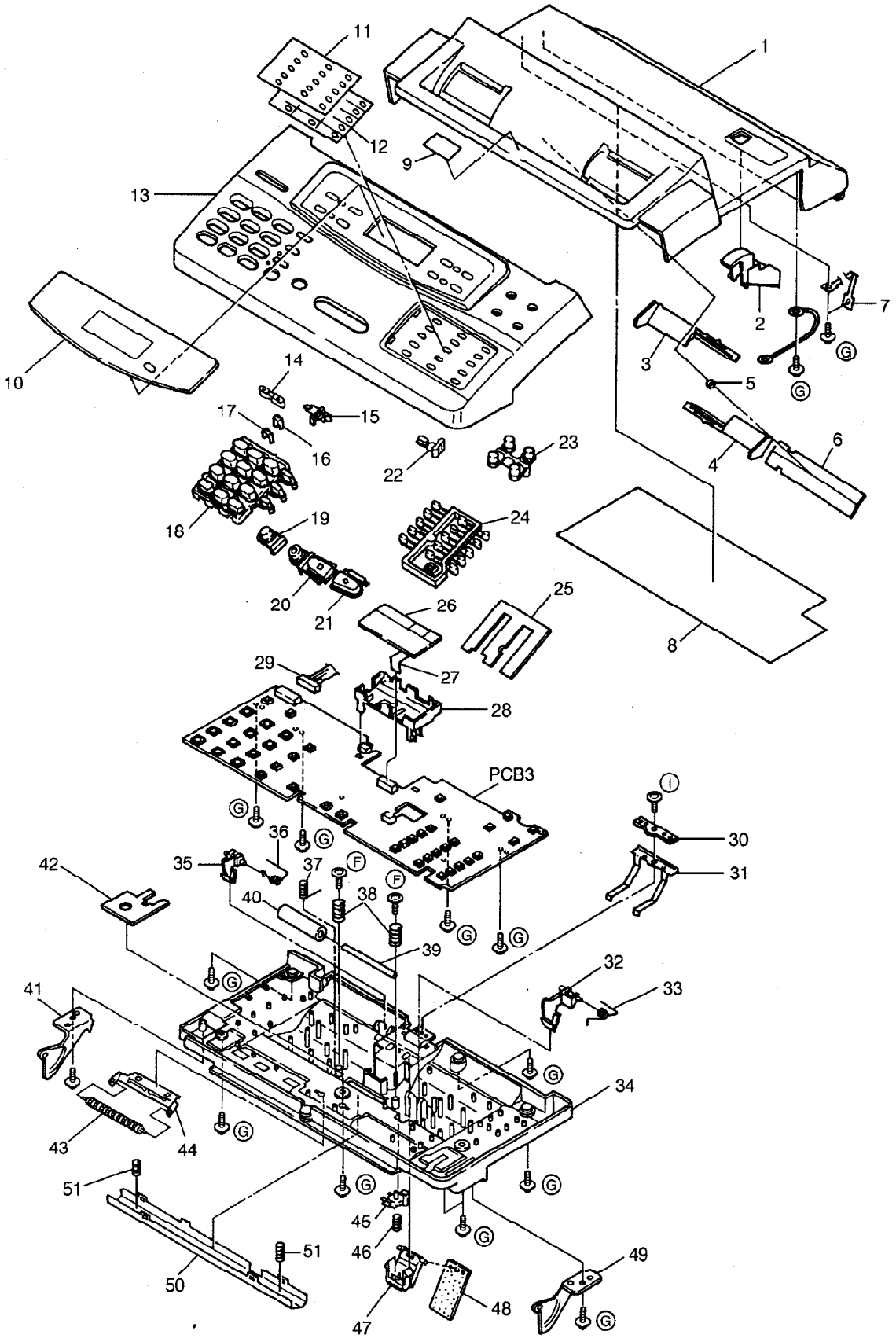
 PQVI96031FCG	 PQVICX58257C	 PQVIR96DFXL	 PQVIBA12003	 PQVIT7C85
 PQVIMB8C42JF	 PQVITC7S00FL	 PQVIS3510ACJ PQVIMC34119M PQVINJM4558M PQVIFA5311S PQVIMM1245BF	 PQVIBU121020 MN53007QAF PQVIMS8C5A2G	 PQVITC7H04AF
 PQVINJM4558D	 PQVISN7H138S	 AN1431T	 PQVTFS10KM10	 2SC1741AS
 PQVITC4052BF PQVITC4053BF	 PQVITD62064A	 PQVIS79164FU	 2SA1627	 PQWIF1000M
 PQVTDTC114EU 2SB1218A, 2SD1819A PQVTDTC143E, 2SB1051K	 PQVDS1ZB40F1	 RLS71	 2SD1994A 2SB1322	 MA2300
 PQVDR325CA47	 2SC2235	 MA6D49	 MA143	 PQVDD2SBA60
 1SS120, 1SS131	 PQVDERA1802 MA165	 PQVDHZS2B1 MA4051 MA4056	 1SS147, MA4220 MA4180, MA4150 MA7200	 2SC3568

TOOL

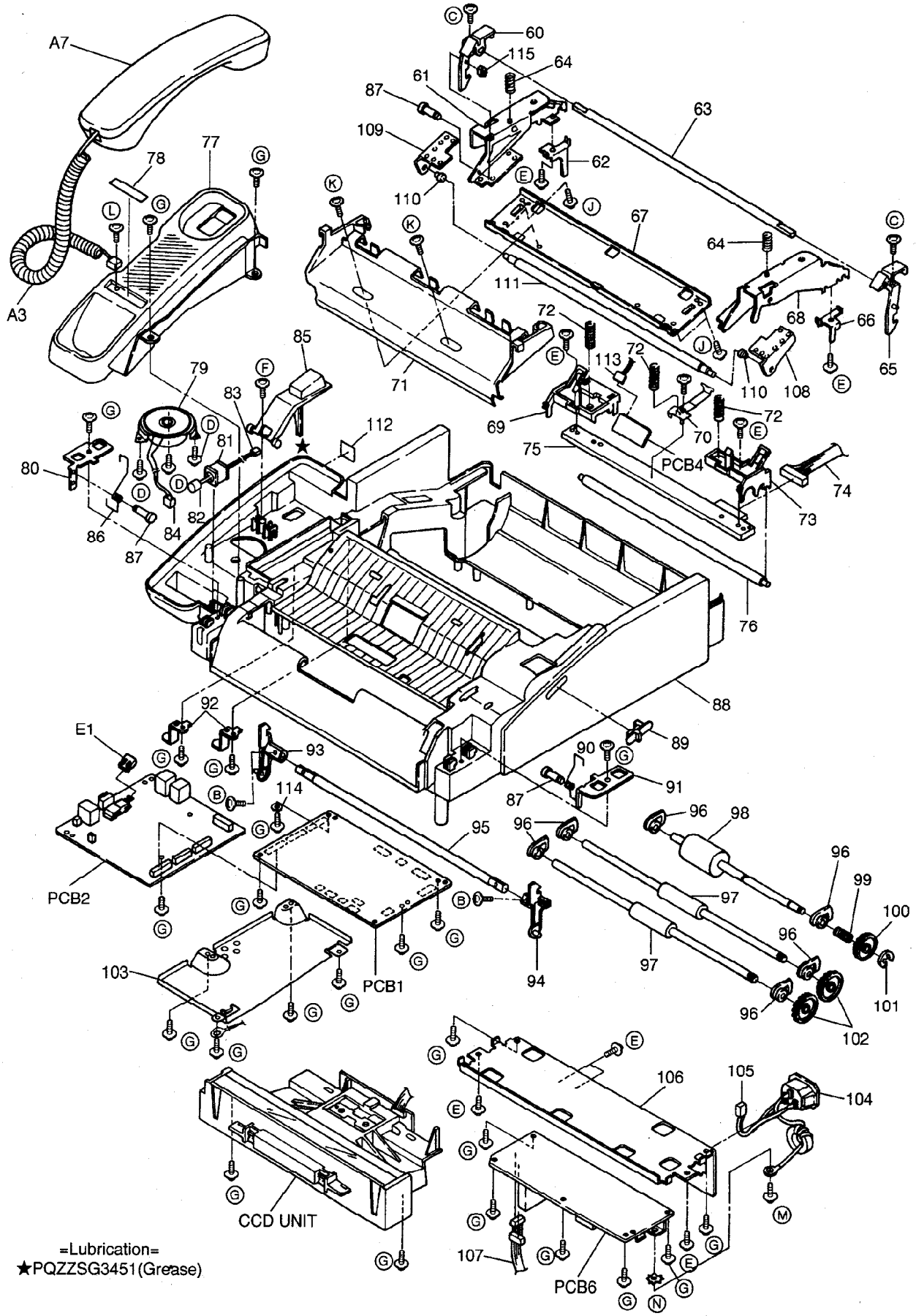

EC10
EC4
EC9
EC12
EC13
EC1
EC11
EC3
EC7
EC12
EC8
EC5
EC7
EC1
EC2

CABINET, MECHANICAL AND ELECTRICAL PARTS LOCATION

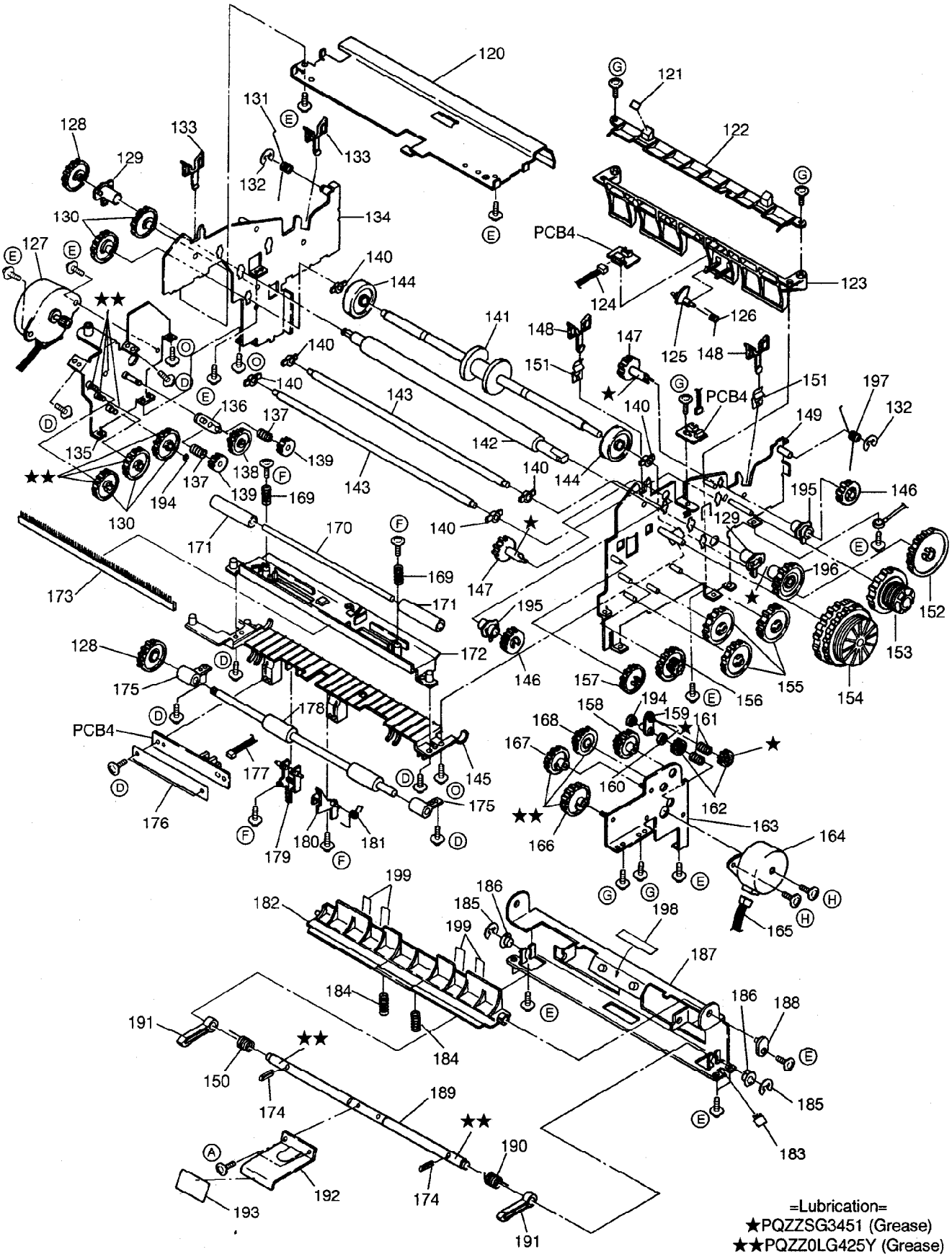
1. OPERATION PANEL SECTION



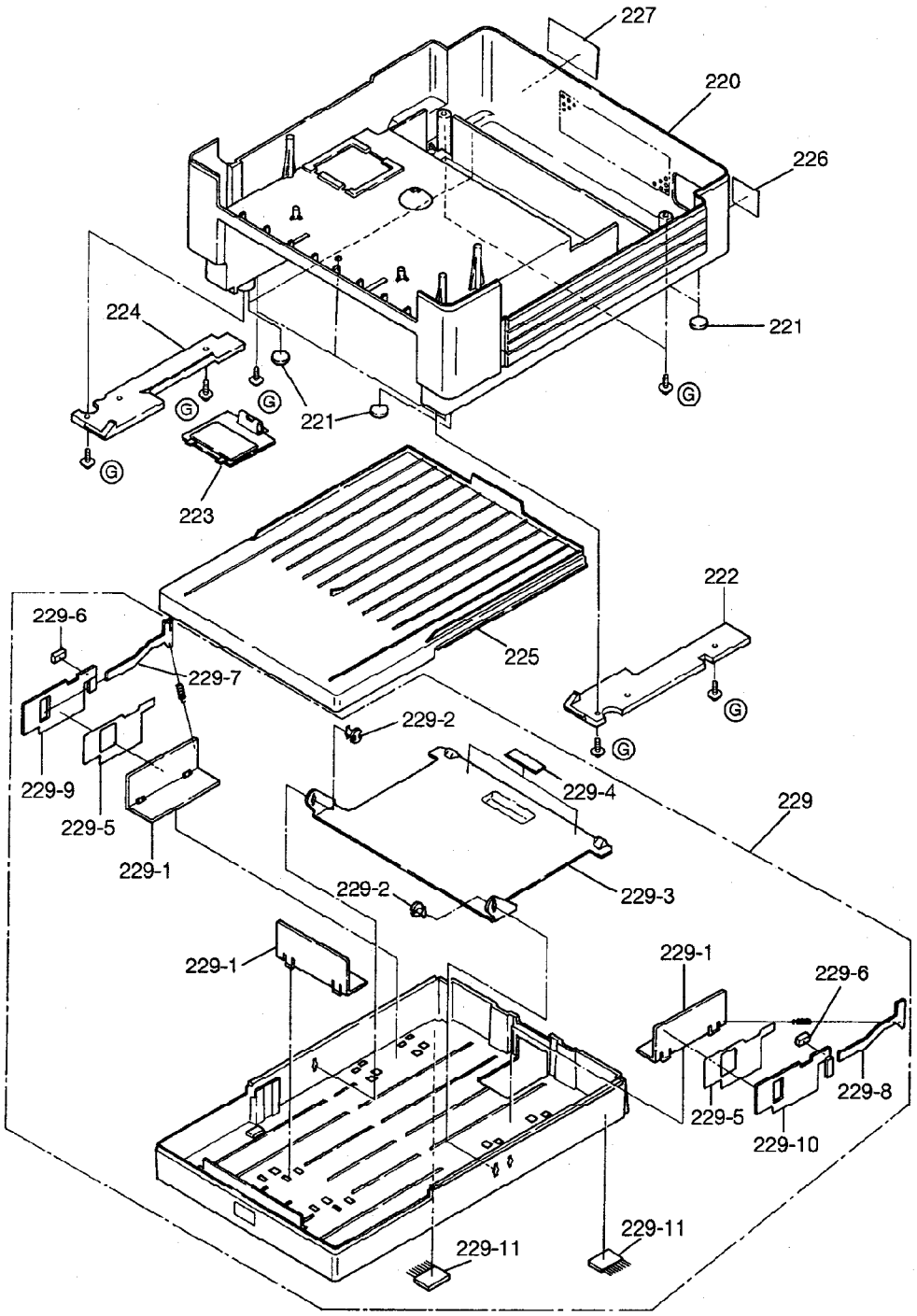
2. UPPER CABINET/P.C.B/THERMAL HEAD SECTION



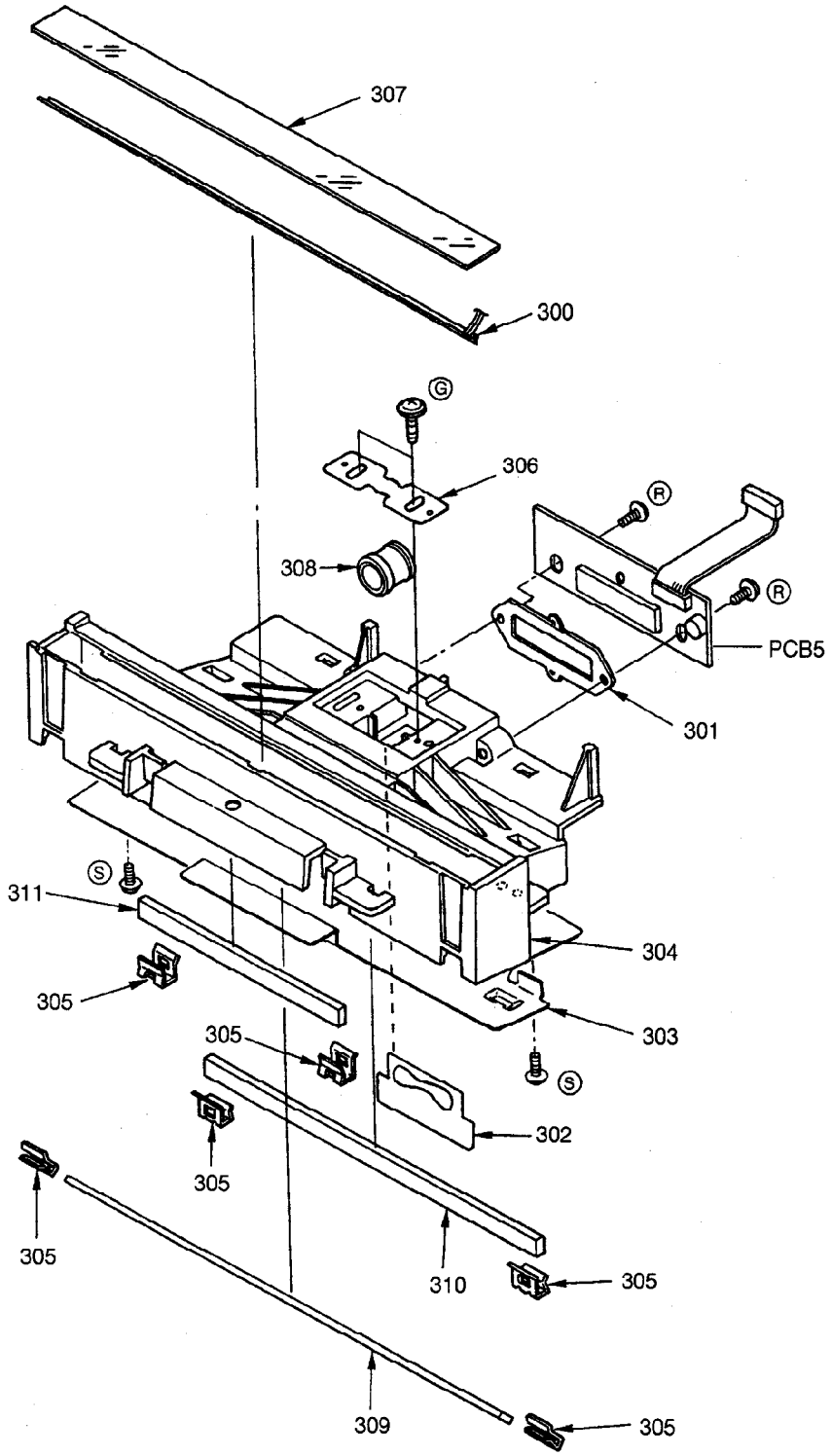
3. MECHANICAL SECTION



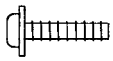
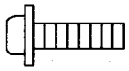
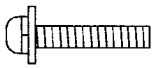
4. LOWER CABINET/PAPER CASSETTE SECTION



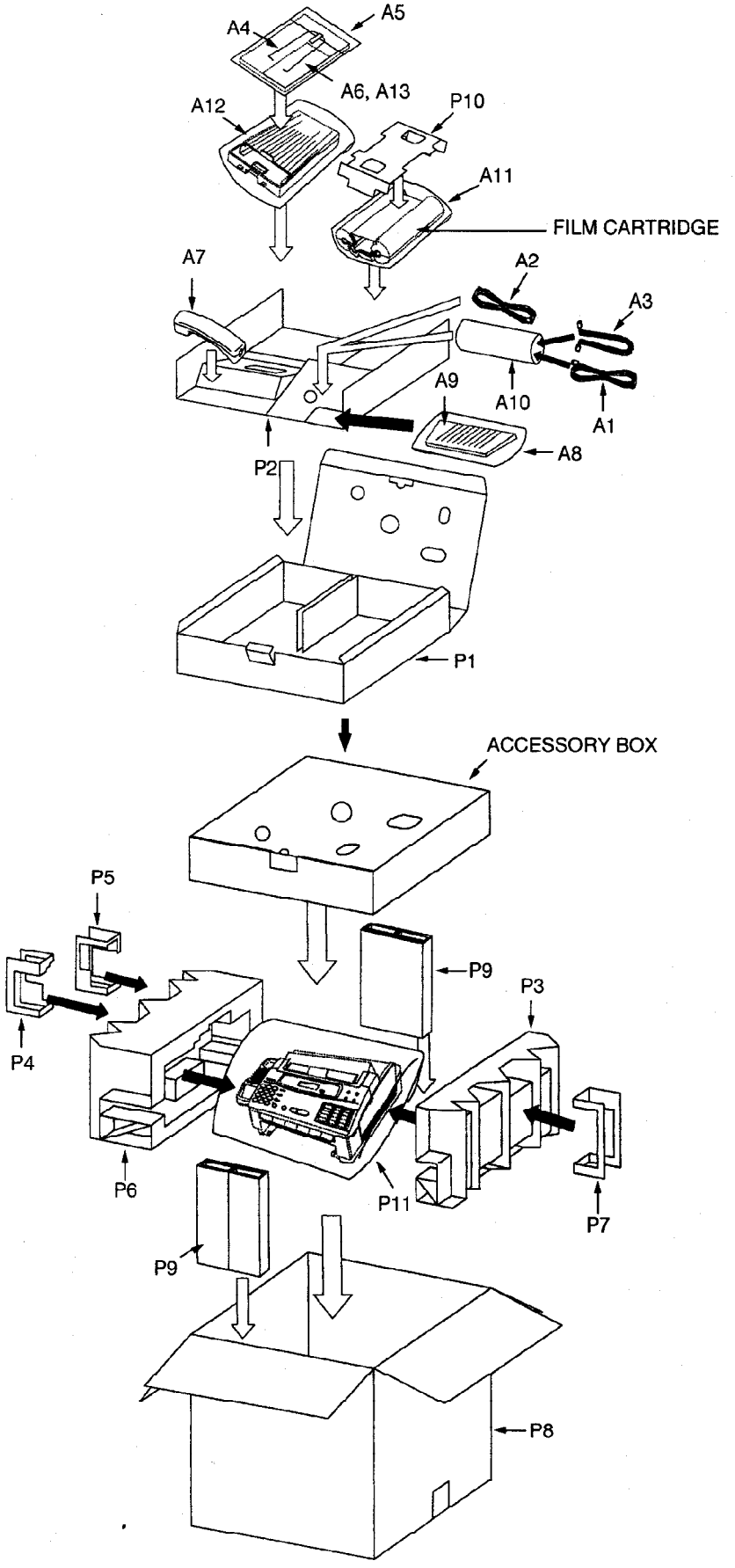
5. CCD UNIT SECTION



6. ACTUAL SIZE OF SCREWS AND WASHER

Ref. No.	Part No.	Figure	Ref. No.	Part No.	Figure
Ⓐ	XYN3+F8		Ⓚ	XTW3+U8L	
Ⓑ	XYN26+F6		Ⓛ	XTW3+S12P	
Ⓒ	XYN26+CF6		Ⓜ	XSB4+6	
Ⓓ	XTW3+S8M		Ⓝ	XWC4B	
Ⓔ	XTW3+U6L		Ⓞ	XTW3+U6LR	
Ⓕ	XTW3+W8P		Ⓟ	XYC3+CF14	
Ⓖ	XTW3+S10P		Ⓠ	XTW3+U10L	
Ⓗ	XTW3+5L		Ⓡ	XYN3+F16	
Ⓘ	XTS26+8G		Ⓢ	XTB3+8G	
Ⓙ	XYN3+C6				

ACCESSORIES AND PACKING MATERIALS



REPLACEMENT PARTS LIST

This replacement parts list is for U.S.A. version only. Refer to the simpleified manual (cover) for other areas.

REPLACEMENT PARTS LIST

Model KX-F1000/KX-F1020

Notes:

1. RTL (Retention Time Limited)
   The marking (RTL) indicates that the Retention Time is limited for this item.
   After the discontinuation of this assembly in production, the item will continue to be available for a specific period of time. The retention period of availability is dependent on the type of assembly, and in accordance with the laws governing part and product retention.
   After the end of this period, the assembly will no longer be available.
2. Important safety notice
   Components identified by the ⚠ mark special characteristics important for safety.
   When replacing any of these components, use only manufacturer's specified parts.
3. The S mark indicates service standard parts and may differ from production parts.
4. RESISTORS & CAPACITORS
   Unless otherwise specified,
   All resistors are in ohms (Ω) K=1000Ω, M=1000KΩ
   All capacitors are in MICRO FARADS (μF) P= μμF
   *Type &Wattage of Resistor

Type

ERC: Solid	ERX: Metal Film	PQ4R: Carbon
ERD: Carbon	ERG: Metal Oxide	ERS: Fusible Resistor
PQRD: Carbon	ER0: Metal Film	ERF: Cement Resistor

Wattage

10, 16: 1/8W	14, 25: 1/4W	12: 1/2W	1: 1W	2: 2W	3: 3W

*Type &Voltage of Capacitor

Type

ECFD: Semi-Conductor	ECCD, ECKD, ECBT, PQCBC: Ceramic
ECQS: Styrol	ECQE, ECQV, ECQG: Polyester
PQCUV: Chip	ECEA, ECSZ: Electrolytic
ECQMS: Mica	ECQP: Polypropylene

Voltage

ECQ Type	ECQG ECQV Type	ECSZ Type	Others	
1H: 50V	05: 50V	0F: 3.15V	0J: 6.3V	1V: 35V
2A: 100V	1: 100V	1A: 10V	1A: 10V	50, 1H: 50V
2E: 250V	2: 200V	1V: 35V	1C: 16V	1J: 63V
2H: 500V		0J: 6.3V	1E, 25: 25V	2A: 100V

Ref. No.	Part No.	Part Name & Description	Pcs
		CABINET, MECHANICAL AND ELECTRICAL PARTS	
		(1. OPERATION PANEL SECTION)	
1	PQKM10209Z1	CABINET BODY (TOP COVER)	1
2	PQDE10057Z1	LEVER, FILM DETECTION	1
3	PQKR10014Y2	GUIDE-L, DOCUMENT	1
4	PQKR10015Y2	GUIDE-R, DOCUMENT	1
5	PQDG10033Z	GEAR, DOCUMENT GUIDE	1
6	PQMH10182Z	ANGLE, DOCUMENT GUIDE	1
7	PQHX10583Z	PLASTIC PARTS, STOPPER BELT	2
8	PQQT11147Z	LABEL, HEAD CAUTION	1
9	PQQT11016Z	LABEL, FACE DOWN	1
10	PQGP10113Z	PANEL, LCD (for KX-F1000)	1
10	PQGP10118Z	PANEL, LCD (for KX-F1020)	1
11	PQGV10032Z	TRANSPARENT PLATE, MEMORY CARD	1
12	PQGD10143Z	MEMORY CARD (for KX-F1000)	1
12	PQGD10146Z	MEMORY CARD (for KX-F1020)	1
13	PQGG10061Z1	PANEL (GRILLE), OPERATION	1
14	PQBC10170Z2	BUTTON, VOLUME	1
15	PQHR10445Z	SPACER, VOLUME BUTTON	1
16	PQGP10091Z	COVER-A, LED	1
17	PQGP10092Z	COVER-B, LED	1
18	PQBX10217Y2	BUTTON, DIAL	1
19	PQBC10167Z1	BUTTON, SP-PHONE	1
20	PQBX10216Z2	BUTTON, STOP/COPY	1
21	PQBC10166Z1	BUTTON, START	1
22	PQBX10254Z1	BUTTON, MODE	1
23	PQBX10253Z1	BUTTON, HELP	1
24	PQBX10255Z1	BUTTON, ONE TOUCH	1
25	PQHX10585Z	PLASTIC PARTS, ONE TOUCH BUTTON SHEET	1
26	PQLP10111M-H	LCD UNIT	1
27	PQJE10069Z	FLAT CABLE	1
28	PQHR10354Y	GUIDE, LCD UNIT	1
29	PQJS10P07Z	CONNECTOR LEAD, 10P	1
30	PQMH10125Y	ANGLE, ADF SPRING	1
31	PQUS10123X	SPRING, DOCUMENT FEED	1
32	PQDE10034Y	LEVER, DOCUMENT DETECT	1
33	PQUS10135Y	SPRING, DOCUMENT DETECT LEVER	1
34	PQUV10022Z	COVER, OPERATION PANEL	1
35	PQDE10033Z	LEVER, READ DETECTION	1
36	PQUS10134Z	SPRING, DOCUMENT DETECT LEVER	1
37	PQUS10148Z	SPRING, OPERATION EARTH	1
38	PQUS10125Y	SPRING, ROLLER	2
39	PQDF10036Z	SHAFT, SUPPORT ROLLER	1
40	PQDR9685Z	ROLLER, SUPPORT	1
41	PQMH10250Z	ANGLE, OPERATION SUPPORT	1
42	PQHX10570Z	COVER, STATIC ELECTRIC	1
43	PQDR10005Z	ROLLER, EXIT	1
44	PQUS10181Z	SPRING, EXIT	1
45	PQHR10312Z	LEVER, SEPARATION SPRING AJT	1
46	PQUS10124Z	SPRING, SEPARATION	1
47	PQHR10311Z	GUIDE, SEPARATION RUBBER	1
48	PQHG10357Z	SEPARATION RUBBER	1
49	PQMH10251Z	ANGLE, OPERATION SUPPORT	1
50	PQZE3F1000M	READING PLATE ASS'Y	1
51	PQUS10177Z	SPRING, READING PLATE	2
		(2. UPPER CABINET/ PCB/ THERMAL HEAD SECTION)	
60	PQDE10060Z	LEVER, HEAD ARM LOCK	1
61	PQMH10245Z	ARM-L, TERMAL HEAD	1
62	PQMH10253Z	ANGLE, HEAD ARM	1
63	PQDF10046Z	SHAFT, HEAD ARM LOCK	1
64	PQUS10168Z	SPRING	2
65	PQDE10052Z	LEVER, HEAD ARM LOCK	1
66	PQMH10243Z	ANGLE, HEAD ARM	1
67	PQMD10085Z	FRAME, TERMAL HEAD	1
68	PQMH10246Z	ARM-R, TERMAL HEAD	1
69	PQDE10053Z	GUIDE-L, TERMAL HEAD	1
70	PQMH10255Z	ANGLE, TERMAL HEAD FULCRUM	1
71	PQHR10450Z	COVER	1
72	PQUS10167Z	SPRING, TERMAL HEAD	3
73	PQDE10054Z	GUIDE-R, TERMAL HEAD	1
74	PQJS15P01Z	CONNECTOR LEAD, 15P	1
75	PQJHS0016Z	TERMAL HEAD	1
76	PQDF10047Z	SHAFT, FILM GUIDE ROLLER	1
77	PQKM10211Z1	HANDSET CRADLE	1
78	PQHX10241Z	CARD, TEL. NO.	1
79	PQAS5P13Z	SPEAKER	1
80	PQMH10248Z	ANGLE, SCANNER	1
81	PQHG556Z	RUBBER PARTS, MIC COVER	1
82	PQJM128Z	MICROPHONE	1
83	PQJS02Q62Z	CONNECTOR LEAD, 2P	1
84	PQJS02Q68Z	CONNECTOR LEAD, 2P	1
85	PQBH10019Z2	BUTTON, HOOK	1
86	PQUS10174Z	SPRING, OPERATION PANEL	1
87	PQHD10010Y	SCREW	3
88	PQKM10210Z1	CABINET BODY	1
89	PQBD10033W2	KNOB, OPEN	1
90	PQUS10184Z	SPRING, OPERATION PANEL	1
91	PQMH10249Z	ANGLE, SCANNER	1
92	PQMH10247Z	ANGLE, P. C. B.	2
93	PQDE10063Z	LEVER-L, LOCK	1
94	PQDE10062Z	LEVER-R, LOCK	1
95	PQDF10051Z	SHAFT, LOCK LEVER	1
96	PQDJ10002Z	SPACER, ROLLER	6
97	PQDN10022Z	ROLLER, DOCUMENT FEED	2
98	PQDN10021Z	ROLLER, SEPARATION	1
99	PQUS10014Z	SPRING, ONE WAY	1

This replacement parts list is for U.S.A. version only. Refer to the simpleified manual (cover) for other areas.

Ref. No.	Part No.	Part Name & Description	Pcs
100	PQDG10006Z	GEAR, SEPARATION ROLLER	1
101	XUC2FY	RETAINING RING	1
102	PQDG10034Z	GEAR, DOCUMENT FEED ROLLER	1
103	PQMD10087Z	FRAME, BOTTOM	2
104	PQJP3A3Z	AC INLET ⚠	1
105	PQJS02Q59Y	CONNECTOR LEAD, 2P	1
106	PQMD10088Z	FRAME	1
107	PQJS10P06Z	CONNECTOR LEAD, 10P	1
108	PQMH10257Z	ANGLE, SEPARATION ROLLER	1
109	PQMH10256Z	ANGLE, SEPARATION ROLLER	1
110	PQDJ10021Z	SPACER, SEPARATION ROLLER	2
111	PQDF10057Z	SHAFT, SEPARATION ROLLER	1
112	PQHX10155Z	PLASTIC PARTS, TEL. JACK SHEET	1
113	PQJS3P05Z	CONNECTOR LEAD, 3P	1
114	PQNW364Z	WASHER	1
115	XNG26F	NUT	1
		(3. MECHANICAL SECTION)	
120	PQMD10086Z	CHASSIS, MEMBER-A	1
121	PQQT11153Z	INDICATION LABEL	1
122	PQUG10009Z	GUIDE, P. PAPER	1
123	PQUG10008Y	GUIDE, P. PAPER	1
124	PQJS4P02Z	CONNECTOR LEAD, 4P	1
125	PQDE10055Z	LEVER, P. TOP SENSOR	1
126	PQUS10171Z	SPRING, P. TOP SENSOR	1
127	PQJQ10015Z	RX MOTOR	1
128	PQDG10053Z	GEAR, ROLLER DRIVE	2
129	PQDJ10018Y	SPACER. PLATEN	2
130	PQDG10054Z	GEAR, IDLE	5
131	PQUS10170Z	SPRING, HEAD ARM	1
132	XUC4FY	RETAINING RING	2
133	PQDJ10017Y	SPACER (LEAD CLAMPER)	2
134	PQUA10012Z	CHASSIS	1
135	PQUA10014Z	SUB CHASSIS	1
136	PQDE10061Y	ARM, RX RENDULUM	1
137	PQUS10179Z	SPRING, RX RENDULUM	2
138	PQDG10051Z	GEAR, RX SUN	1
139	PQDG10052Z	GEAR, RX PLANETARY	2
140	PQDJ10008Y	SPACER, ROLLER	6
141	PQDR10004Y	ROLLER, PICK UP	1
142	PQDN10028Z	ROLLER, PLATEN	1
143	PQDF10044Z	SHAFT, FILM GUIDE ROLLER	2
144	PQFQ10006Z	PULLEY, PICK UP	2
145	PQUG10007Z	GUIDE, P. EXIT	1
146	PQDG10050Z	GEAR, RIBBON	2
147	PQDG10049Z	GEAR, RIBBON	2
148	PQDJ10017Z	SPACER, RIBBON	2
149	PQUA10013Z	CHASSIS	1
150	PQUS10161Z	SPRING, LIFT	1
151	PQUS10188Z	SPRING	2
152	PQDG10047Z	GEAR, PICK UP	1
153	PQDX10017Z	GEAR, SUPPLY TORQUE LIMITOR	1
154	PQDX10016Z	GEAR, WIND TORQUE LIMITER	1
155	PQDG10058Z	GEAR, IDLE	3
156	PQDG10057Z	GEAR, IDLE	1
157	PQDG10056Z	GEAR, IDLE	1
158	PQDG10059Z	GEAR, IDLE	1
159	PQDE10059Y	ARM, RX PENDULUM	1
160	XWE3	WASHER	1
161	PQUS10191Z	SPRING, RX PENDULUM	2
162	PQDG10055Z	GEAR, PLANETARY	2
163	PQUA10015Z	CHASSIS, TX GEAR	1
164	PQJQ10010Z	TX MOTOR	1
165	PQJS5P04Z	CONNECTOR LEAD, 5P	1
166	PQDG10029Z	GEAR, IDLE	1
167	PQDG10026Z	GEAR, IDLE	1
168	PQDG10025Z	GEAR, IDLE	1
169	PQUS10125Y	SPRING, ROLLER	2

Ref. No.	Part No.	Part Name & Description	Pcs
170	PQDF10045Z	SHAFT, P. EXIT ROLLER	1
171	PQDR9685Z	ROLLER, SUB	2
172	PQUG10010Z	GUIDE, P. EXIT	1
173	PQJE113Z	UNITISTATIC BRUSH	1
174	XPL2A12WVW	PIN	2
175	PQDJ10016Z	SPACER, EXIT ROLLER	2
176	PQHX10582Z	COVER, SENSOR BOARD	1
177	PQJS6P03Z	CONNECTOR LEAD, 6P	1
178	PQDN10029Z	ROLLER, PAPER EXIT	1
179	PQDE10056Z	LEVER, PAPER SENSOR	1
180	PQDE10051Z	LEVER, P. EXIT SENSOR	1
181	PQUS10165Z	SPRING, P. EXIT SENSOR	1
182	PQUG10006Y	GUIDE, SEPARATION	1
183	PQJV10008Z	UNITISTATIC BRUSH	1
184	PQUS10192Z	SPRING, SEPARATION GUIDE	2
185	XUC5FY	RETAINING RING	2
186	PQDJ10020Z	SPACER, LIFT UP	2
187	PQMD10083Z	CHASSIS, PICK UP	1
188	PQHR10444Z	SPACER, SEPARATION	1
189	PQDF10043Z	SHAFT, LEFT PLATE	1
190	PQUS10162Z	SPRING, LIFT	1
191	PQDE10050Z	ARM, LIFT UP	2
192	PQMH10244Z	ANGLE, LIFT	1
193	PQHX10602Z	PLASTIC PARTS, NON FRICTION SHEET	1
194	PQFN61Z	WASHER	2
195	PQDJ10019Z	SPACER, FILM GEAR	2
196	PQDG10048Z	GEAR, FILM DRIVE	1
197	PQUS10178Z	SPRING, HEAD ARM	1
198	PFHX1004Z	SPACER	1
199	PQHX10606Z	SPACER SHEET	4
		(4. LOWER CABINET/PAPER CASSETTE SECTION)	
220	PQKF10149Z1	CABINET PLATE	1
221	PQHG10065Z	RUBBER PARTS, LEG	4
222	PQKR10017Z	GUIDE-R, PAPER CASSETTE	1
223	PQKE55Z4	ROM LID	1
224	PQKR10018Z	GUIDE-L, PAPER CASSETTE	1
225	PQZE2F1000M	COVER, PAPER CASSETTE	1
226	PFQT1001Z	LABEL, AC IN	1
227	PQGT12224Z	NAME PLATE (for KX-F1020)	1
229	PQZE1F1000M	PAPER CASSETTE ASS'Y	1
229-1	PQKR10016Y1	GUIDE, LEAGL CHANGE	3
229-2	PQHR10443Z	SPACER, PAPER CASSETTE	2
229-3	PQMD10082Y	ANGLE, PAPER CASSETTE	1
229-4	PQHG10355Y	RUBBER, CASSETTE SEPARATION	2
229-5	PFHS1001Z	SHEET	2
229-6	PQHG431Z	CORNER RUBBER	2
229-7	PFMH1001Z	CORNER THERMINAL-L	1
229-8	PFMH1002Z	CORNER THERMINAL-R	1
229-9	PFMH1003Z	CORNER ANGLE-L	1
229-10	PFMH1004Z	CORNER ANGLE-R	1
229-11	PQJV10008Z	UNITISTATIC BRUSH	2
		(5. CCD SECTION)	
300	LNR304501	LED ARRAY	1
301	PQHR9725Z	SPACER	1
302	PQHX10457Z	COVER	1
303	PQMD10073Z	COVER	1
304	PQUA10008Z	CHASSIS	1
305	PQUS216Z	SPRING, MIRROR	6
306	PQUS217Z	SPRING, LENS	1
307	PQ0G10003Z	GLASS	1
308	PQ0L6Y	LENS S	1
309	PQ0M10010Z	MIRROR, LONG	1
310	PQ0M10011Z	MIRROR, MIDDLE	1
311	PQ0M10012Z	MIRROR, SHORT	1

This replacement parts list is for U.S.A. version on Refer to the simpleified manual (cover) for other areas.

Ref. No.	Part No.	Part Name & Description		Pcs
		ACCESSORIES AND PACKING MATERIALS		
A1	PQJA59V	CORD, TEL.	⚠S	1
A2	PQJA200Z	CORD, AC	⚠	1
A3	PQJA212M	CORD, HANDSET		1
A4	PQZSF1000M	SPRING (STACKER)		1
A5	XZB30X45A03	PROTECTION COVER (DOCUMENTS)		1
A6	PQQX11505Z	INSTRUCTION BOOK		1
A7	PQJXD0105Z	HANDSET ASS'Y	S	1
A8	XZB15X40A04	PROTECTION COVER (D. TRAY)		1
A9	PQKS10011Z	DOCUMENT TRAY		1
A10	XZB20X20A04	PROTECTION COVER (CORDS)		1
A11	XZB36X40A04	PROTECTION COVER (INK FILM)		1
A12	XZB36X50A04	PROTECTION COVER (P. CASSETTE)		1
A13	PQQW11466Z	QUICK REFERENCE GUIDE		1
P1	PQPN10499Z	ACCESSORY BOX		1
P2	PQPE10027Z	CUSHION FOR ACCESSORY BOX		1
P3	PQPN10501Z	CUSHION-R		1
P4	PQPE10029Z	CUSHION-L1		1
P5	PQPE10030Z	CUSHION-L2		1
P6	PQPN10502Z	CUSHION-L		1
P7	PQPE10028Z	CUSHION-R1		1
P8	PQPK11796X	PACKING CASE (for KX-F1000)		1
P8	PQPK12031Z	PACKING CASE (for KX-F1020)		1
P9	PQPE10038Y	CUSHION		2
P10	PQPE10037Z	CUSHION, INK FILM		1
P11	PQPH10051Z	PROTECTION COVER (SET)		1
		DIGITAL BOARD PARTS		
PCB1	PQWP1F1000M	DIGITAL BOARD ASS'Y(RTL)		1
				1
		(ICs)		
IC401	PQVI96031FCG	IC		1
IC402	PQWIF1000M	IC		1
IC403	PQVICX58257C	IC	S	1
IC404	PQVIT7C85	IC		1
IC405	PQVIR96DFXL	IC		1
IC406	PQVIBA12003	IC	S	1
IC407	PQVISMA7029M	IC		1
IC408	PQVIS3510ACJ	IC		1
IC409	PQVIMM1245BF	IC		1
IC411	PQVITC7S00FL	IC		1
IC413	PQVINJM4558M	IC	S	1
IC415	PQVIMB8C42JF	IC	S	1
IC416	PQVIMB8C42JF	IC	S	1
IC417	PQVIBU121020	IC		1
		(TRANSISTORS)		
Q401	2SD1994A	TRANSISTOR(SI) (or 2SD1921Q)	S	1
Q402	PQVTDTC114EU	TRANSISTOR(SI) (or UN5211)	S	1
Q403	2SB1322	TRANSISTOR(SI) (or 2SB1237R)	S	1
Q405	2SD1819A	TRANSISTOR(SI) (or 2SC4155R)	S	1
Q406	2SB1051K	TRANSISTOR(SI) (or 2SB1197K)	S	1
Q407	PQVTDTC114EU	TRANSISTOR(SI) (or UN5211)	S	1
Q408	2SD1819A	TRANSISTOR(SI) (or 2SC4155R)	S	1
Q410,411	PQVTDTC114EU	TRANSISTOR(SI) (or UN5211)	S	2
Q420,421	2SB1197K	TRANSISTOR(SI)		2
		(DIODES)		
D601	MA7200	DIODE(SI)		1
D602	RLS71	DIODE(SI)		1
		(BATTERY)		
BATT	PQPCR2032H09	LITHIUM BATTERY	S	1

Ref. No.	Part No.	Part Name & Description		Pcs
		(CONNECTORS)		
CN401	PQJP11A19Z	CONNECTOR, 11P		1
CN402	PQJP11A19Z	CONNECTOR, 11P		1
CN403	PQJP11A19Z	CONNECTOR, 11P		1
CN404	PQJP10G30Y	CONNECTOR, 10P		1
CN405	PQJP8G30Y	CONNECTOR, 8P		1
CN406	PQJP02G100Z	CONNECTOR, 2P		1
CN407	PQJP08G100Z	CONNECTOR, 8P		1
CN408	PQJP05G100Z	CONNECTOR, 5P		1
CN409	PQJP05A22Z	CONNECTOR, 5P		1
CN411	PQJP3G30Y	CONNECTOR, 3P		1
CN412	PQJP03G100Z	CONNECTOR, 3P		1
CN413	PQJP04G100Z	CONNECTOR, 4P		1
CN414	PQJP6G30Y	CONNECTOR, 6P		1
		(CAPACITORS)		
C403	PQCUV1E104MD	0.1		1
C405	PQCUV1H182KB	0.0018		1
C406	PQCUV1H222KB	0.0022		1
C407	PQCUV1E104MD	0.1		1
C411-425	PQCUV1E104MD	0.1		14
C426	PQCUV1H180JC	18P		1
C427	PQCUV1H330JC	33P		1
C430	PQCUV1E104MD	0.1	S	1
C434	PQCUV1H220JC	22P		1
C501	PQCUV1E104MD	0.1	S	1
C502	PQCUV1E104MD	0.1	S	1
C503	PQCUV1E104MD	0.1	S	1
C504	PQCUV1E104MD	0.1	S	1
C505	PQCUV1E104MD	0.1	S	1
C506	PQCUV1E104MD	0.1	S	1
C507	ECEA0JK221	220		1
C508	PQCUV1E104MD	0.1	S	1
C509	PQCUV1E104MD	0.1	S	1
C510	PQCUV1H102J	0.001		1
C511	PQCUV1C224ZF	0.22		1
C513	PQCUV1E104MD	0.1	S	1
C514	PQCUV1H331JC	330P		1
C515	PQCUV1E104MD	0.1	S	1
C516	PQCUV1H105JC	1		1
C518	PQCUV1H331JC	330P		1
C519	PQCUV1E104MD	0.1	S	1
C520	PQCUV1H102J	0.001		1
C521	PQCUV1E104MD	0.1	S	1
C522	PQCUV1H102J	0.001		1
C523	PQCUV1H102J	0.001		1
C526	PQCUV1H103KB	0.01		1
C527	ECEA1CK101	100		1
C528	PQCUV1H105JC	1		1
C530	PQCUV1H105JC	1		1
C550	PQCUV1C224ZF	0.22		1
C552,553	PQCUV1E104MD	0.1	S	2
C561	PQCUV1E104MD	0.1	S	1
C580-583	PQCUV1E333MD	0.033	S	4
C584	PQCUV1E104MD	0.1	S	1
C585	PQCUV1E104MD	0.1	S	1
C601	ECEA1VKA220	22		1
C602	ECEA1VU221	220		1
C604,605	PQCUV1H471JC	470P		2
C606,607	PQCUV1H222KB	0.0022		2
C701	PQCUV1E104MD	0.1	S	1
C702	PQCUV1E104MD	0.1	S	1

This replacement parts list is for U.S.A. version or Refer to the simpleified manual (cover) for other areas.

Ref. No.	Part No.	Part Name & Description		Pcs
C704	PQCUV1E104MD	0.1	S	1
C705	PQCUV1H103KB	0.01	S	1
C706	PQCUV1H103KB	0.01	S	1
C707	PQCUV1E104MD	0.1	S	1
C709	PQCUV1H470JC	47P		1
C710	PQCUV1H470JC	47P		1
C711	PQCUV1E104MD	0.1	S	1
C712	PQCUV1E104MD	0.1	S	1
C714	PQCUV1H100DC	10P	S	1
C715	PQCUV1H100DC	10P	S	1
C716	PQCUV1E104MD	0.1	S	1
C717	PQCUV1E104MD	0.1	S	1
C719	PQCUV1E104MD	0.1	S	1
C721	PQCUV1E104MD	0.1	S	1
C724	PQCUV1H103KB	0.01		1
C725	PQCUV1H470JC	47P		1
C731	PQCUV1H103KB	0.01	S	1
C750	PQCUV1E104MD	0.1	S	1
		(CERAMIC FILTERS)		
LC501	EXCEMT222D	CERAMIC FILTER		1
LC502	EXCEMT220B	CERAMIC FILTER		1
		(COILS)		
L403	PQLQR2BT	COIL	S	1
L404, 415	PQLQR2BT	COIL	S	2
L405	PQLQR1ET	COIL		1
L407-414	PQLQR1RM601	COIL		8
		(COMPONENT COMBINATIONS)		
RA405-RA410	EXRV8V101JV	RASISTOR ARRAY		6
		(RESISTORS)		
L401	PQ4R10XJ000	0		1
L402	PQ4R10XJ000	0		1
L701	PQ4R10XJ000	0		1
L702	PQ4R10XJ000	0		1
L703	PQ4R10XJ000	0		1
R402	PQ4R10XJ000	0		1
R403	PQ4R10XJ102	1K		1
R404	PQ4R10XJ472	4.7K		1
R405	PQ4R10XJ103	10K		1
R406-409	PQ4R10XJ101	100		4
R410	PQ4R10XJ000	0		1
R411	PQ4R10XJ222	2.2K		1
R412	PQ4R10XJ103	10K		1
R413-419	PQ4R10XJ101	100		7
R420	PQ4R10XJ223	22K		1
R421	PQ4R10XJ563	56K		1
R422	PQ4R10XJ473	47K		1
R423	PQ4R10XJ472	4.7K		1
R424	PQ4R10XJ272	2.7K		1
R425	PQ4R10XJ472	4.7K		1
R434	PQ4R10XJ472	4.7K		1
R435	PQ4R10XJ472	4.7K		1
R436	PQ4R10XJ105	1M		1
R437	PQ4R10XJ270	27		1
R440	ERJ3GEYJ000	0		1
R442	PQ4R10XJ472	4.7K		1
R443	PQ4R10XJ472	4.7K		1
R444	PQ4R10XJ472	4.7K		1

Ref. No.	Part No.	Part Name & Description		Pcs
R452	PQ4R10XJ101	100		1
R454	ERJ3GEYJ333	33K		1
R455	ERJ3GEYJ682	6.8K		1
R456-459	ERJ3GEYJ271	270		4
R460-467	ERJ3GEYJ331	330		8
R470-473	ERJ3GEYJ271	270		4
R474,475	ERJ3GEYJ331	330		2
R476	PQ4R10XJ331	330		1
R477,478	ERJ3GEYJ331	330		2
R480	ERJ3GEYJ331	330		1
R501	ERD25TJ220	22	S	1
R502	PQ4R10XF1802	18K		1
R503	PQ4R10XF8662	86.6K		1
R504	PQ4R10XJ103	10K		1
R505	ERJ6ENF4752	47.5K		1
R506	ERJ3GEYJ473	47K		1
R507	PQ4R10XJ332	3.3K		1
R508	PQ4R10XF8662	86.6K		1
R509	PQ4R10XJ224	220K		1
R510	PQ4R10XJ224	220K		1
R511	PQ4R10XJ224	220K		1
R512	PQ4R18XJ102	1K		1
R513	PQ4R18XJ102	1K		1
R514	PQ4R10XJ102	1K		1
R517	ERJ3GEYJ103	10K		1
R518	PQ4R10XJ472	4.7K		1
R520,521	PQ4R10XJ222	2.2K		2
R522-525	ERJ3GEYJ222	2.2K		4
R526,527	PQ4R10XJ222	2.2K		2
R553,554	PQ4R10XJ472	4.7K		2
R555	ERJ3GEYJ472	4.7K		1
R556,557	ERJ3GEYJ000	0		2
R558,559	ERJ3GEYJ472	4.7K		2
R560	ERJ3GEYJ000	0		1
R561,562	PQ4R10XJ331	330		2
R563,564	ERJ3GEYJ563	56K		2
R565	PQ4R10XJ331	330		1
R566	ERJ3GEYJ563	56K		1
R567	PQ4R10XJ331	330		1
R568	ERJ3GEYJ563	56K		1
R569	PQ4R10XJ122	1.2K		1
R570	ERJ3GEYJ333	33K		1
R573	ERJ3GEYJ562	5.6K		1
R575	ERJ3GEYJ000	0		1
R577	PQ4R10XJ472	4.7K		1
R578	PQ4R10XJ103	10K		1
R593	PQ4R10XJ000	0		1
R595	PQ4R10XJ000	0		1
R601	ERD25TJ332	3.3K	S	1
R602	PQ4R10XJ821	820		1
R610-613	ERJ3GEYJ562	5.6K		4
R614-616	PQ4R10XJ472	4.7K		3
R617	PQ4R10XJ103	10K		1
R621	ERJ3GEYJ393	39K		1
R622	PQ4R10XJ473	47K		1
R624	PQ4R10XJ473	47K		1
R627	ERJ3GEYJ393	39K		1
R628	PQ4R10XJ563	56K		1
R629	PQ4R10XJ471	470		1

This replacement parts list is for U.S.A. version on Refer to the simpleified manual (cover) for other areas.

Ref. No.	Part No.	Part Name & Description		Pcs
R630	PQ4R10XJ272	2.7K		1
R631	ERDS1VJ1R0	1		1
R632	PQ4R10XJ272	2.7K		1
R633	ERDS1VJ1R0	1		1
R634	PQ4R10XJ000	0		1
R635	PQ4R10XJ101	100		1
R636	PQ4R10XJ000	0		1
R637	ERJ3GEYJ101	100		1
R640	PQ4R10XJ822	8.2K		1
R702	PQ4R10XJ222	2.2K		1
R703	PQ4R10XJ000	0		1
R704	PQ4R10XJ472	4.7K		1
R705	PQ4R10XJ000	0		1
R706-708	PQ4R10XJ101	100		3
R719	PQ4R10XJ472	4.7K		1
R721	PQ4R10XJ103	10K		1
R722	PQ4R10XJ000	0		1
R723	PQ4R10XJ472	4.7K		1
R736	PQ4R10XJ101	100		1
R737	PQ4R10XJ101	100		1
R738	PQ4R10XJ101	100		1
R739	PQ4R10XJ472	4.7K		1
R745	PQ4R10XJ472	4.7K		1
		(CRYSTAL OSCILLATORS)		
X401	PQVCJ2400N5Z	CRYSTAL OSCILLATOR		1
X403	PQVCL3276N6Z	CRYSTAL OSCILLATOR		1
		ANALOG BOARD PARTS		
PCB2	PQLP10139M	ANALOG BOARD ASSY (RTL)		1
		(ICs)		
IC1	PQVIMS8C5A2G	IC	S	1
IC2	PQVIS79164FU	IC		1
IC3	PQVIMC34119M	IC		1
IC4	PQVINJM4558D	IC		1
IC5	PQVINJM4558D	IC		1
IC6	PQVINJM4558D	IC		1
IC7	PQVITC4053BF	IC	S	1
IC8	PQVITC4066BF	IC	S	1
IC9	PQVITC4066BF	IC	S	1
IC10	PQVINJM4558D	IC		1
		(TRANSISTORS)		
Q1	2SA1627	TRANSISTOR(SI)		1
Q2	2SD1819A	TRANSISTOR(SI) (or 2SC4155S)	S	1
Q3	2SC2235	TRANSISTOR(SI)	S	1
Q4	2SD1819A	TRANSISTOR(SI) (or 2SC4155S)	S	1
Q5	2SD1819A	TRANSISTOR(SI) (or 2SC4155S)	S	1
Q6	PQVTDTC143E	TRANSISTOR(SI) (or UN521L)	S	1
Q7	2SD1819A	TRANSISTOR(SI) (or 2SC4155S)	S	1
Q8	PQVTDTC143E	TRANSISTOR(SI) (or UN521L)	S	1
		(DIODES)		
D1	1SS120	DIODE(SI)		1
D4	RLS71	DIODE(SI)		1
D7	1SS120	DIODE(SI)		1
D10	MA143	DIODE(SI)		1
D11	MA143	DIODE(SI)		1
ZD1	MA4180	DIODE(SI)	S	1
ZD2	PQVDHZS2B1	DIODE(SI)	S	1
ZD3, 4	MA4056	DIODE(SI)	S	2
REC1	PQVDS1ZB40F1	DIODE(SI)		1

Ref. No.	Part No.	Part Name & Description		Pcs
		(CONNECTORS)		
CN1	PQJS11A10Z	CONNECTOR, 11P		1
CN2	PQJS11A10Z	CONNECTOR, 11P		1
CN3	PQJS11A10Z	CONNECTOR, 11P		1
CN4	PQJP10G30Y	CONNECTOR, 10P		1
CN5	PQJP2G30Z	CONNECTOR, 2P		1
CN6	PQJP02G100Z	CONNECTOR, 2P		1
		(CAPACITORS)		
C1	ECQE2E224JZ	0.22	S	1
C2	ECKD2H681KB	680P	S	1
C3	ECKD2H681KB	680P	S	1
C4	PQCUV1H103KB	0.01	S	1
C5	ECEA1HKS4R7	4.7	S	1
C6	ECEA1CKS100	10	S	1
C7	PQCUV1E333MD	0.033		1
C8	ECEA1CU221	220		1
C9	ECEA1HU100	10	S	1
C10	ECEA1HN3R3S	3.3		1
C11	ECQE2E104KZ	0.1	S	1
C12	PQCUV1C334ZF	0.33		1
C20	ECUV1H102KBV	0.001		1
C21	PQCUV1C683MD	0.068		1
C22	ECUV1H680JCV	68P		1
C23	PQCUV1C683MD	0.068		1
C24	ECUV1H470JCV	47P		1
C25	ECUV1H680JCV	68P		1
C26	PQCUV1E104MD	0.1	S	1
C28	ECEA1HKSR47	0.47	S	1
C30	ECEA1HKS4R7	4.7	S	1
C31	ECUV1H103KBV	0.01		1
C32	ECUV1H103KBV	0.01		1
C33	PQCUV1C683MD	0.068		1
C34	PQCUV1C683MD	0.068		1
C35	ECUV1H392KBV	0.0039		1
C36	ECUV1H392KBV	0.0039		1
C38	PQCUV1E333MD	0.033		1
C39	ECUV1H221JCV	220P		1
C41	PQCUV1H103KB	0.01	S	1
C42	PQCUV1C683MD	0.068		1
C43	ECEA1HKS010	1	S	1
C44	ECEA1HKS2R2	2.2	S	1
C45	ECEA1HKS010	1	S	1
C46	PQCUV1C224ZF	0.22	S	1
C47	ECUV1H561JCV	560P	S	1
C48	ECEA1CKS470	47	S	1
C49	ECEA0JU471	470		
C50	ECEA1AU221	220	S	1
C51	ECEA1HKS4R7	4.7	S	1
C52	ECEA1CKS100	10	S	1
C55	PQCUV1E473MD	0.047		1
C57	ECUV1H822KBV	0.0082		1
C58	PQCUV1H332KB	0.0033	S	1
C59	ECUV1H103KBV	0.01		1
C60	ECUV1H103KBV	0.01		1
C61	PQCUV1E104MD	0.1	S	1
C62	PQCUV1H105JC	1	S	1
C63	ECUV1H103KBV	0.01		1
C70	ECUV1H331JCV	330P	S	1
C71	PQCUV1H223KB	0.022	S	1
C72	PQCUV1H682KB	0.0068	S	1
C73	PQCUV1H223KB	0.022	S	1
C74	PQCUV1C683MD	0.068		1

This replacement parts list is for U.S.A. version on Refer to the simpleified manual (cover) for other areas.

Ref. No.	Part No.	Value		Pcs
C76	PQCUV1H682KB	0.0068	S	1
C77	PQCUV1H682KB	0.0068	S	1
C80	ECEA1AU101	100	S	1
C81	ECEA1HKS010	1	S	1
C82	ECEA1HKS010	1	S	1
C83	ECUV1H102KBV	0.001		1
C85	ECUV1H472KBV	0.0047		1
C86	PQCUV1E333MD	0.033		1
C87	PQCUV1H103KB	0.01	S	1
C88	PQCUV1E104MD	0.1	S	1
C89	PQCUV1E104MD	0.1	S	1
C90	PQCUV1H223KB	0.022	S	1
C91	PQCUV1E104MD	0.1	S	1
C93	ECUV1H103KBV	0.01	S	1
C95	ECUV1H103KBV	0.01	S	1
C96	ECUV1H103KBV	0.01		1
C97	PQCUV1H103KB	0.01	S	1
C98	PQCUV1E104MD	0.1	S	1
C100	ECEA1EU101	100	S	1
C102	ECEA1EU101	100	S	1
C104	ECEA1AU101	100	S	1
C106	ECEA1AU101	100	S	1
C108	PQCUV1E104MD	0.1	S	1
C109	ECUV1H332KBV	0.0033		1
C110	PQCUV1E473MD	0.047		1
C111	PQCUV1H223KB	0.022	S	1
C112	ECUV1H470JCV	47P		1
C113	PQ4R10XJ000	0 (RESISTOR)		1
C114	PQCUV1E104MD	0.1	S	1
C115	ECUV1H151JCV	150P		1
C116	PQCUV1H103KB	0.01	S	1
C117	PQCUV1E104MD	0.1	S	1
C197	PQCUV1H105JC	1	S	1
		(JACKS)		
JJ1	PQJJ1T004Z	JACK		1
JJ2	PQJJ1T004Z	JACK		1
JJ3	PQJJ1TB18Z	JACK		1
		(COILS)		
L1, 2	PQLQR1ET	COIL		2
L3, 4	PQLQR1E32A07	COIL		2
L5-8	PQLQR2BT	COIL		4
		(PHOTO ELECTRIC TRANSDUCERS)		
PC1	PQVIPC814K	PHOTO COUPLER	⚠ S	1
PC2	PQVITLP627	PHOTO COUPLER	⚠ S	1
PC3	PQVIPC817CD	PHOTO COUPLER	⚠ S	1
PC4	PQVIPC814K	PHOTO COUPLER	⚠ S	1
		(POSISTOR)		
POS1	PQRPBC120N	POSISTOR		1
		(RELAY)		
RLY1	PQSL119Z	RELAY	⚠	1
		(RESISTORS)		
FB1	PQ4R18XJ000	0	S	1
J48	ERDS2TJ000	0		1
J60	PQ4R10XJ000	0		1
J61	PQ4R10XJ000	0		1
J63-68	PQ4R10XJ000	0		6

Ref. No.	Part No.	Part Name & Description	Pcs
J69	PQ4R18XJ000	0	1
J70	PQ4R18XJ000	0	1
J81	PQ4R18XJ000	0	1
J82	PQ4R18XJ000	0	1
		(RESISTORS)	
R1	ERDS1TJ473	47K	1
R2	PQ4R10XJ104	100K	1
R3	ERDS2TJ472	4.7K	1
R4	ERDS2TJ5R6	5.6	1
R5	PQ4R10XJ103	10K	1
R6	PQ4R10XJ472	4.7K	1
R7	PQ4R10XJ391	390	1
R8	PQ4R10XJ393	39K	1
R9	ERDS2TJ103	10K	1
R10	PQ4R10XJ682	6.8K	1
R11	PQ4R10XJ822	8.2K	1
R12	ERDS1TJ330	33	1
R13	PQ4R18XJ152	1.5K	1
R14	ERDS1TJ473	47K	1
R15	PQ4R18XJ101	100	1
R16	ERDS2TJ333	33K	1
R17	PQ4R10XJ182	1.8K	1
R18	PQ4R10XJ473	47K	1
R19	ERDS2TJ102	1K	1
R20	PQ4R10XF1001	1K	1
R21-24	PQ4R10XJ104	100K	4
R25	PQ4R10XJ681	680	1
R26	PQ4R10XJ621	620	1
R27	PQ4R10XJ202	2K	1
R28	PQ4R10XJ244	240K	1
R29	PQ4R10XJ224	220K	1
R30	PQ4R10XJ223	22K	1
R31	PQ4R10XJ222	2.2K	1
R32	PQ4R10XJ222	2.2K	1
R41	PQ4R10XJ152	1.5K	1
R42	PQ4R10XJ152	1.5K	1
R43-46	PQ4R10XJ153	15K	4
R47	PQ4R10XJ223	22K	1
R48	PQ4R10XJ224	220K	1
R49	PQ4R10XJ102	1K	1
R50	PQ4R10XJ332	3.3K	1
R51	PQ4R10XJ102	1K	1
R52	PQ4R10XJ223	22K	1
R54	PQ4R10XJ104	100K	1
R55	PQ4R10XJ220	22	1
R56	PQ4R10XJ512	5.1K	1
R57	PQ4R10XJ563	56K	1
R58	PQ4R10XJ333	33K	1
R59	PQ4R10XJ333	33K	1
R60	PQ4R10XJ333	33K	1
R61	PQ4R10XJ681	680	1
R63	PQ4R10XJ224	220K	1
R64	PQ4R10XJ114	110K	1
R65	PQ4R10XJ104	100K	1
R66	PQ4R10XJ513	51K	1
R67	PQ4R10XJ472	4.7K	1
R68	PQ4R10XJ392	3.9K	1
R69	ERDS2TJ104	100K	1
R70	PQ4R10XJ103	10K	1
R71	ERDS2TJ154	150K	1
R74	PQ4R10XJ334	330K	1
R75	PQ4R10XJ335	3.3M	1
R76	PQ4R10XJ223	22K	1

This replacement parts list is for U.S.A. version on Refer to the simpleified manual (cover) for other areas.

Ref. No.	Part No.	Part Name & Description		Pcs
R77	PQ4R10XJ275	2.7M		1
R79	PQ4R10XJ222	2.2K		1
R80	PQ4R10XJ223	22K		1
R81	PQ4R10XJ683	68K		1
R82	PQ4R10XJ333	33K		1
R83	PQ4R10XJ223	22K		1
R84	PQ4R10XJ473	47K		1
R85	ERDS2TJ153	15K		1
R89	PQ4R10XJ223	22K		1
R90	PQ4R10XJ223	22K		1
R91	PQ4R10XJ333	33K		1
R92	PQ4R10XJ103	10K		1
R99	PQ4R10XJ332	3.3K		1
R100	ERDS1TJ4R7	4.7	S	1
R101	PQ4R10XJ103	10K		1
R102	PQ4R10XJ103	10K	S	1
R103	PQ4R10XJ474	470K	S	1
R104	PQ4R18XJ183	18K		1
R105	PQ4R10XJ104	100K	S	1
R106	PQ4R10XJ103	10K		1
R107	PQ4R10XJ564	560K		1
R108	PQ4R10XJ105	1M		1
R109	PQ4R10XJ473	47K		1
R110	PQ4R10XJ563	56K		1
R111	PQ4R10XJ333	33K		1
R112	PQ4R10XJ153	15K		1
R113	PQ4R10XJ103	10K		1
R114	PQ4R10XJ473	47K		1
R115	PQ4R10XJ153	15K		1
R116	PQ4R10XJ223	22K		1
R117	PQ4R10XJ473	47K		1
R118	PQ4R10XJ101	100		1
R119	PQ4R10XJ563	56K		1
R121	PQ4R10XJ563	56K		1
R123	PQ4R10XJ563	56K		1
R125	ERDS2TJ473	47K		1
R126	PQ4R10XJ101	100		1
R127	PQ4R10XJ101	100		1
R129	PQ4R10XJ223	22K		1
R130	PQ4R10XJ224	220K		1
R131	PQ4R10XJ333	33K		1
R132	PQ4R10XJ473	47K		1
R133	PQ4R10XJ683	68K		1
R134	PQ4R10XJ684	680K		1
R135	PQ4R10XJ223	22K		1
R136	PQ4R10XJ473	47K		1
R137	PQ4R10XJ682	6.8K		1
R138	PQ4R10XJ564	560K		1
R139	PQ4R10XJ102	1K		1
R140	PQ4R10XJ563	56K		1
R141	PQ4R10XJ104	100K		1
R142	PQ4R10XJ184	180K		1
R143	PQ4R10XJ563	56K		1
R144	PQ4R10XJ222	2.2K		1
R145	PQ4R10XJ563	56K		1
R146	PQ4R10XJ473	47K		1
R160	PQ4R10XJ682	6.8K		1
		(VARISTORS)		
SA1	PQVDRA311PT3	VARISTOR (SURGE ABSORBER)		1
SA2	PQVDDSA102MS	VARISTOR (SURGE ABSORBER)		1
SA3	PQVDRA311PT3	VARISTOR (SURGE ABSORBER)		1
VAR1	PQVDVR61B	VARISTOR		1

Ref. No.	Part No.	Part Name & Description		Pcs
		(SWITCHES)		
S1	ESE14A211	HOOK SWITCH		1
S2	PQSS2A27Z	SWITCH		1
		(TRANSFORMERS)		
T1	PQLT8E7A	TRANSFORMER	⚠	1
T2	PQLT8E6A	TRANSFORMER	⚠	1
		(OTHER)		
E1	PQHR9451Y	SPACER FOR HOOK SWITCH		1
		OPERATION BOARDS PARTS		
PCB3	PQLP10140M	OPERATION BOARD ASS'Y (RTL)		1
		(ICs)		
IC301	MN53007QAF	IC		1
IC302	PQVISN7H138S	IC		1
		(TRANSISTORS)		
Q301	PQVTDTC114EU	TRANSISTOR(SI)		1
Q302	PQVTDTC114EU	TRANSISTOR(SI)		1
Q303	PQVTDTA143EU	TRANSISTOR(SI)		1
		(DIODES)		
D301	1SS131	DIODE(SI)		1
D302	1SS131	DIODE(SI)		1
D320-325	1SS131	DIODE(SI)		6
LED302	PQVDR325CA47	LED	S	1
LED303	PQVDR325CA47	LED	S	1
		(CONNECTORS)		
CN301	PQJP10G43Y	CONNECTOR, 10P		1
CN302	PQJS10X59Z	CONNECTOR, 10P		1
		(CAPACITORS)		
C301	PQCUV1E104MD	0.1	S	1
C302	ECEA1AKS221	220		1
C303	PQCUV1E104MD	0.1	S	1
C304	PQCUV1E104MD	0.1	S	1
C305	PQCUV1H122KB	0.0012	S	1
C308	PQCUV1H471JC	470P		1
C309	PQCUV1H101JC	100P		1
C310	PQCUV1H103KB	0.01	S	1
C320	PQCUV1E104MD	0.1	S	1
C340	PQCUV1E104MD	0.1	S	1
C341	PQCUV1E104MD	0.1	S	1
C342	PQCUV1H101JC	100P		1
C343	PQCUV1H331JC	330P		1
C344	PQCUV1H331JC	330P		1
C345-348	PQCUV1E104MD	0.1	S	4
		(PHOTO ELECTRIC TRANSDUCERS)		
PI301	PQVISGKP01	SENSOR		1
PI302	PQVISGKP01	SENSOR		1
		(RESISTORS)		
J1,2,5,8,9	PQ4R10XJ000	0		5
J10-13	PQ4R10XJ000	0		4
J50,51,54 ,55,56,58	PQ4R18XJ000	0		6

This replacement parts list is for U.S.A. version on Refer to the simpleified manual (cover) for other areas.

Ref. No.	Part No.	Part Name & Description		Pcs
R301	PQ4R10XJ222	2.2K	S	1
R302	PQ4R10XJ222	2.2K		1
R303	PQ4R10XJ222	2.2K		1
R304	PQ4R10XJ222	2.2K	S	1
R305	PQ4R10XJ222	2.2K	S	1
R306	PQ4R10XJ222	2.2K	S	1
R307-312	PQ4R10XJ181	180	S	6
R320	PQ4R10XJ181	180		1
R321, 322	PQ4R18XJ181	180	S	2
R323-327	PQ4R10XJ181	180	S	5
R328, 329	PQ4R18XJ222	2.2K	S	2
R330-335	PQ4R10XJ222	2.2K	S	6
R336	PQ4R10XJ102	1K	S	1
R337	PQ4R10XJ102	1K	S	1
R338	PQ4R10XJ102	1K	S	1
R347	PQ4R10XJ222	2.2K	S	1
R348	PQ4R10XJ222	2.2K	S	1
R349	PQ4R10XJ222	2.2K		1
R350	PQ4R10XJ222	2.2K		1
R351	PQ4R10XJ222	2.2K	S	1
R352	PQ4R10XJ222	2.2K	S	1
R353	PQ4R10XJ222	2.2K	S	1
R354	PQ4R10XJ471	470	S	1
R355	PQ4R10XJ471	470	S	1
R360	PQ4R10XJ821	820	S	1
R361	PQ4R10XJ000	0	S	1
R363	PQ4R10XJ821	820	S	1
R370	PQ4R10XJ331	330		1
R371	PQ4R10XJ331	330	S	1
R372	PQ4R10XJ563	56K	S	1
R373	PQ4R10XJ563	56K	S	1
R390	PQ4R10XJ000	0		1
		(SWITCHES)		
S301,302 ,303,307 ,308,309 ,313,314 ,315	EVQ21405R	SWITCH		9
S304,305 ,306,310 ,311,312 ,316,317	PQSH1A43Z	SWITCH		8
S318	PQSH1A43Z	SWITCH	S	1
S319	EVQ21405R	SWITCH		1
S320,321	EVQ21405R	SWITCH		2
S322,323 ,324	PQSH1A43Z	SWITCH	S	3
S325	EVQ21405R	SWITCH		4
S328,329	EVQ21405R	SWITCH		2
S330	EVQ21405R	SWITCH		1
S333-336	EVQ21405R	SWITCH		4
S338	EVQ21405R	SWITCH		1
S339	EVQ21405R	SWITCH		1
S340, 343-348	EVQ21405R	SWITCH		7

Ref. No.	Part No.	Part Name & Description		Pcs
		SENSOR BOARD PARTS		
PCB4	PQLP10141M	SENSOR BOARD ASS'Y (RTL)		1
		(CONNECTOR)		
CN1	PQJP03G100Z	CONNECTOR, 3P		1
CN901	PQJP3G43Y	CONNECTOR, 3P		1
CN902	PQJP4G90Z	CONNECTOR, 4P		1
CN904	PQJP6G30Y	CONNECTOR, 6P		1
		(PHOTO ELECTRIC TRANSDUCER)		
PS901	PQVIPS6002	SENSOR		1
PS902	PQVISGKP01	SENSOR		1
PS904	PQVIPS4506	SENSOR	S	1
PS905	PQVIPS4506	SENSOR	S	1
		(SWITCH)		
SW1	ESE14A211	SWITCH		1
		CCD BOARD PARTS		
PCB5	PQWP2F500M	CCD BOARD ASS'Y (RTL)		1
		(IC)		
IC801	PQWP2F500M	CCD BOARD ASS'Y (RTL)		1
		(TRANSISTORS)		
Q801,802	2SB1218A	TRANSISTOR(SI) (or 2SA1576R, 2SA1602F 2SA1603F)	S	2
Q803	2SD1819A	TRANSISTOR(SI) (or 2SC4155R)	S	1
		(CONNECTOR)		
CN801	PQJS08Q63Z	CONNECTOR, 8P		1
		(CAPACITORS)		
C801	ECEA1CKS101	100		1
C802,803	PQCUV1E104MD	0.1		2
		(RESISTORS)		
J801-803	PQ4R10XJ000	0	S	3
J804-806	PQ4R18XJ000	0	S	3
R801,802	PQ4R10XJ101	100	S	2
R803	PQ4R10XJ331	330	S	1
R804	PQ4R10XJ101	100	S	1
R805,806	PQ4R10XJ202	2K	S	2
R807	PQ4R10XJ242	2.4K	S	1
R808	PQ4R10XJ682	6.8K	S	1
R809	PQ4R10XJ180	18	S	1
R810	PQ4R10XJ132	1.3K	S	1
R811,812	PQ4R10XJ161	160	S	2
R815	PQ4R10XJ242	2.4K	S	1
R816	PQ4R10XJ682	6.8K	S	1
R817	PQ4R10XJ222	2.2K	S	1
R819	PQ4R10XJ102	1K	S	1
		(VARIABLE RESISTOR)		
VR801	EVNDXAA03B23	SEMI-FIXED RESISTOR, 2K (B)		1

This replacement parts list is for U.S.A. version only. Refer to the simpleified manual (cover) for other areas.

Ref. No.	Part No.	Part Name & Description		Pcs
		SWITCHING POWER SUPPLY BOARD PARTS		
PCB6	PQLP10133M-M	POWER SUPPLY BOARD ASS'Y (RTL)	⚠	1
		(ICs)		
IC101	PQVIFA5311S	IC		1
IC201	AN1431T	IC	S	1
		(TRANSISTORS)		
Q101	PQVTFS10KM10	TRANSISTOR(SI)		1
Q202	2SC3568	TRANSISTOR(SI)		1
Q203	2SC1741AS	TRANSISTOR(SI)		1
Q204,205	2SA1309	TRANSISTOR(SI)	S	2
		(DIODES)		
D101	PQVDD2SBA60	DIODE(SI)	S	1
D103,105	MA4220	DIODE(SI)	S	2
D104,204 ,206	PQVDERA1802	DIODE(SI)	S	3
D106,202	MA165	DIODE(SI)		2
D201	MA6D49	DIODE(SI)	S	1
D205	PQVDERA81004	DIODE(SI)		1
D207	MA4051	DIODE(SI)		1
D210	MA2300	DIODE(SI)	S	1
D211	MA4150	DIODE(SI)	S	1
		(CONNECTORS)		
CN31	PQJP2D98Z	CONNECTOR, 2P		1
CN301	PQJP6G100Z	CONNECTOR, 6P		1
CN302	PQJP10G30Y	CONNECTOR, 10P		1
		(CAPACITORS)		
C101	ECQU2A224MN	0.22	S	1
C102,103	ECKDRS102MB	0.001	S	2
C104	ECKDRS222ME	0.0022	S	1
C105	EETLD2D221C	220	S	1
C106	ECKD3A221KBN	220P	S	1
C107	ECUV1H221KBM	220P (for PCB-SUB 68-4391A)		1
C107	ECUV1H221KBN	220P (for PCB-SUB 68-4391B)		1
C108	ECUV1H104KBW	0.1		1
C109	ECUV1H561KBM	560P (for PCB-SUB 68-4391A)		1
C109	ECUV1H561KBN	560P (for PCB-SUB 68-4391B)		1
C111	ECUV1H473KBW	0.047 (for PCB-SUB 68-4391A)		1
C111	ECUV1H473KBX	0.047 (for PCB-SUB 68-4391B)		1
C112	ECA1VHG330	33	S	1
C113	ECQU2A473MN	0.047	S	1
C201	EEUFA1V103	10000	S	1
C202	ECQB1H104KF	0.1	S	1
C203	ECQB1H473JF	0.047	S	1
C204	ECQB1H103JF	0.01	S	1
C205	PQCEA16B220	22P	S	1
C206	PQCEA10B1000	1000	S	1
C207	PQCEA16A100	10P	S	1
C208	ECA1AHG101	100P	S	1
C210	ECQV1H224JZ	0.22	S	1
C211	ECKD3A102KBN	0.001	S	1
		(FUSE)		
F101	PQBA1C50NBKL	FUSE	⚠	1
		(COILS)		
L101,102	ELF18D290R	COIL (LINE FILTER)	S	2
L103	EXCELDR35	BEAD CORE		1
L201	PQLQ681388A	COIL		1
		(PHOTO ELECTRIC TRANSDUCER)		
PC101	PQVIPC817CD	PHOTO COUPLER	S	1

Ref. No.	Part No.	Part Name & Description		Pcs
		(RELAY)		
RL201	PQSLG5P1DC12	RELAY	S	1
		(RESISTORS)		
R101	ERDS1FJ105	1M	S	1
R102,103	ERDS2TJ124	120K	S	2
R104	ERG1SJU100	10	S	1
R105,113	ERX1SJR33P	0.33	S	2
R106	PQ4R18XJ471	470 (for PCB-SUB 68-4391A)	S	1
R106	PQ4R10XJ471	470 (for PCB-SUB 68-4391B)	S	1
R107	PQ4R18XJ562	5.6K (for PCB-SUB 68-4391A)	S	1
R107	PQ4R10XJ562	5.6K (for PCB-SUB 68-4391B)	S	1
R108	PQ4R18XJ222	2.2K (for PCB-SUB 68-4391A)	S	1
R108	PQ4R10XJ222	2.2K (for PCB-SUB 68-4391B)	S	1
R109,115	ERDS2TJ220	22	S	2
R110	ERDS2TJ103	10K	S	1
R111	ERDS2TJ160	16	S	1
R112	PQ4R18XJ101	100 (for PCB-SUB 68-4391A)	S	1
R112	PQ4R10XJ101	100 (for PCB-SUB 68-4391B)	S	1
R114	PQ4R18XJ181	180 (for PCB-SUB 68-4391A)	S	1
R114	PQ4R10XJ181	180 (for PCB-SUB 68-4391B)	S	1
R201,203	ERDS2TJ222	2.2K	S	2
R202	ERDS2TJ183	18K	S	1
R204	ERDS1TJ331	330	S	1
R206	ERDS2TJ563	56K	S	1
R210	ERDS2TJ681	680	S	1
R211	ERDS2TJ332	3.3K	S	1
R212	ERDS2TJ392	3.9K	S	1
R213	ERDS2TJ101	100	S	1
		(THERMISTOR)		
T101	ETS29AE125A	TRANSFORMER	⚠	1
T201	ETS22AE159A	TRANSFORMER	⚠	1
		(THERMISTOR)		
TH101	PQRRT8D11F2	THERMISTOR	S	1
		(VARIABLE RESISTOR)		
VR201	EVNDJAA03B53	SEMI-FIXED RESISTOR, 5K (B)		1
		(VARISTORS)		
Z101	ERZC10DK471	VARISTOR	S	1
Z102	ERZV10DK182U	VARISTOR	S	1
Z104	ERZC10DK751U	VARISTOR	S	1

		FIXTURES AND TOOL	
EC1	PQZZ2K12Z	EXTENSION CORD, 2P	2
EC2	PQZZ6K18Z	EXTENSION CORD, 6P	1
EC3	PQZZ2K13Z	EXTENSION CORD, 2P	1
EC4	PQZZ3K8Z	EXTENSION CORD, 3P	1
EC5	PQZZ3K12Z	EXTENSION CORD, 3P	1
EC6	PQZZ4K7Z	EXTENSION CORD, 4P	1
EC7	PQZZ5K6Z	EXTENSION CORD, 5P	1
EC8	PQZZ6K7Z	EXTENSION CORD, 6P	1
EC9	PQZZ6K14Z	EXTENSION CORD, 6P	1
EC10	PQZZ8K15Z	EXTENSION CORD, 8P	1
EC11	PQZZ2K6Z	EXTENSION CORD, 2P	1
EC12	PQZZ10K4Z	EXTENSION CORD, 10P	2
EC13	PQZZ11K8Z	EXTENSION CORD, 11P	4
	PQZZ2F500M	SEPARATION SPRING HEINGHT TOOL	1
	PQZZF600M	CCD TOOL	1
		Notes: 1. Tools and Extension Cords (Ref. No. EC1, EC2) are necessities for servicing. 2. Extension Cords (Ref. No. EC3-EC13) are useful for servicing. (They make servicing easy.)	